Ronnel B. King · Allan B. I. Bernardo

Editors

The Psychology of Asian Learners

A Festschrift in Honor of David Watkins

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Springer

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Foreword

This is a book recognising one of the major contributors to educational psychology in Asia. It outlines the seeming paradox about Asian learners who perform so well in international tests of school achievement and collaborative learning – but many in the West shudder at what they see are didactic, top-down teaching methods and an over reliance on memorisation, rote learning, and surface-level thinking. Simple answers to this paradox are often provided, such as the East is collectivist, whereas the West is individualist; the East overuses memory, whereas the West uses deeper learning; the East favours effort, whereas the West favours ability; and so on. This book dispels these false contrasts and offers a much more nuanced interpretation about the qualities of the Asian learner.

Another aim of this book is to celebrate the scholarly achievements of Professor David Watkins who has pioneered research on the Asian learner. His four earlier books with John Biggs (and others) – *The Chinese Learner: Cultural, Psychological, and Contextual Influences* (1996), *Teaching the Chinese Learner: Psychological and Pedagogical Perspectives* (2001), *Learning and Teaching in Hong Kong: What Is and What Might Be* (1993), and *Learning and Development of Asian Students: What the 21st Century Teacher Needs to Think About* (2010) – were among the first to create a research literature on the Chinese learner and created a platform for many others to research this topic. The chapters in this book show the generative power and solid platform that David and John provided, and the fascination is how their ideas have spread from China to encompass many other Asian countries. Kember's chapter in this book provides the story of this development and how the paradox has been resolved, while McInerney's chapter tells the story of David's solid research programme and how it has evolved throughout the years.

In each chapter David's work is evident, and what a powerful contribution he has made. I first met David when we were young lecturers at the University of New England. He was in the Higher Education unit, had a fascination with chess, was a fellow lover of quantitative methods (David's first degree was in mathematical statistics), and had a deep knowledge of the research literature. I learned that I had to hurry up and read the literature he kept sending me as most morning tea times were punctuated with "what did you think of the x article", "how come x said this but y

said that", and his pursuit of the big ideas. This was the start of a long friendship spanning 35 years.

David left New England to move to ANU in Canberra, then to my home province Canterbury in New Zealand, and then to Hong Kong where his major substantive work that is the focus of this book was undertaken. His research is built on educational psychology and measurement, and we have kept researching together; we have shared supervision and involvement in our student's theses and co-authored 35+ papers. I visited Hong Kong on many occasions and was wonderfully hosted by David and Oletia; we have followed our respective families from children into adulthood, and we share our love of cricket and the All Blacks.

Our work crosses David's major interests: self-esteem, student learning strategies, conceptions of teaching and learning, and cross-cultural methods. As examples of our joint interests, we have published together on *self-esteem*: self-concept clarity, the relationship between self-concept scales and social disability, and the structure of self-esteem in Nepalese children. On *conceptions*: competing causal models linking academic goals and learning strategies, multiple goals in a Hong Kong Chinese educational context, academic risk factors and learned hopelessness, late change in the medium of instruction, the motive-strategy congruence model, approaches to learning of Australian secondary school students, and preferred classroom environment and approaches to learning. On *cross-cultural*: how concepts of competition differ across cultures, interactions between collectivist and individualist attributes, and measuring collectivism and individualism. My favourite collaboration was a paper that has been lost in the uncited undergrowth of history (Watkins & Hattie, 1985). We followed a group of students through their undergraduate years and were the first to apply the invariant factor model (McDonald, 1984) to these change data. It was fascinating to see that surface not deep learners were more likely to succeed at undergraduate primarily because surface learning was more favoured in the examinations despite college lecturers repeatedly telling the students that they preferred deep learning. Students who were strategic were the most successful. The paper combined our joint interests in conceptions of learning and statistical methodology and was one of the most enjoyable papers I have worked on.

David's books speak to the foundations he has provided for this book: *The Chinese Learner, Learning and Teaching in Hong Kong*, *Teaching the Chinese Learner*, and *Learning and Development of Asian Students*. His 200+ research papers provide a depth of detail about these major topics of his research, and it is only deteriorating eyesight that is slowing him down – even though we all look forward to his next impact – which for me is David saying "John, do you really have evidence for that?" "Are you sure?" Away we would go and redo the analyses, pour over the interpretation, get excited when it related to previous findings, and get really excited when it did not so relate. These reminders to "tell the story" based on the evidence will remain, and all my own students know the phrase "what is the story" as I probably ask it every meeting. There are powerful stories in this book.

Most academics pride themselves on what they leave behind – and there is no better heritage than your PhD students. David has supervised a total of 36 research postgraduate students, and many of them are authors in this book. They have gone

on to publish and to take leading research positions throughout Asia, and they have honoured their mentor with this festschrift.

John Hattie

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Contributors

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Qiuzhi Xie is currently a postdoctoral fellow at the Hong Kong Polytechnic University. She obtained her PhD degree in educational psychology at the University of Hong Kong in Dec. 2013. This paper grows out of her doctoral dissertation that focuses on cognitive and learning styles as well as personality and intelligence. She also has broad research interests, such as implicit learning and language learning and processing.

Man Kate Xu is an applied statistician/epidemiologist, with broad interests and experiences in medical, educational psychology and ageing research. Substantively, her work on educational psychology mostly focuses on the frame of reference effect in academic self-concept research, in particular the internal/external frame of reference and big-fish-little-pond effect models. Previously, she has also worked on psychometric improvement of behavioural measures in genetic association investigations, which focus on the development of reliable, robust phenotypes of cognition and mental health based on questionnaire and longitudinal cohort data. Currently, she is working on developing methods in causal inference on –omics data in relation to metabolic health. Specific types of modelling techniques she uses in her research include: survival analysis, exploratory structural equation modelling, structural equation modelling, measurement invariance assessment, latent growth curve modelling, multilevel modelling and missing data imputation.

Lan Yang is an assistant professor working at the Department of Curriculum and Instruction, the Hong Kong Institute of Education. Her research interests include self-concept, student motivation, achievement emotions, and positive youth development. She was one of the three recipients of the Highly Commended Dissertation Award from the Global Self-concept Enhancement and Learning Facilitation (SELF) Research Network, 2013. She is also the author of a scholarly book entitled *Enhancing the Learning of Chinese Students in Secondary Vocational Education and Training* to be published by Springer. She has also published widely in international peer-reviewed journals such as *Journal of Educational Psychology*, *The Asia-Pacific Education Researcher*, and *The International Journal of Psychological and Educational Assessment*.

Shengquan Ye obtained his PhD from the University of Hong Kong. He joined the City University of Hong Kong as an assistant professor in 2009. He has been working on topics related to positive psychology, human values, social beliefs, narcissism, nostalgia, and curiosity. He is also interested in scale development and validation.

Susanna Siu Sze Yeung is currently assistant professor of the Department of Psychological Studies at the Hong Kong Institute of Education (HKIEd). Before joining HKIEd, she has taught at the University of Hong Kong, the Hong Kong Polytechnic University, and the Open University of Hong Kong. She received her BSocSci, MPhil, and EdD degrees from the University of Hong Kong. Her research interests revolve around the early English language and reading development and classroom intervention and learning outcomes.

Alexander S. Yeung is deputy director of the Institute for Positive Psychology and Education at the Australian Catholic University. He is a registered teacher, a psychologist, a professional translator, a linguist, and an educational researcher. He has taught in various educational settings from preschool to tertiary levels and has been a teacher educator for 40 years. His expertise includes self-concept, motivation, measurement and evaluation, cognition and instruction, and language and psychological studies. He has special interests in the research on cross-cultural studies.

Baohua Yu obtained her PhD at the University of Hong Kong, and she is currently an assistant professor at The Hong Kong Institute of Education. Being awarded two prestigious fellowships twice sponsored by the Australian Government, Dr Yu accumulated teaching and research experiences in Australia in 2007 and 2009, respectively. Before joining HKIEd, she worked as a postdoctoral research fellow at the University of New South Wales, research fellow at the City University of Hong Kong, and professional educational researcher at the Hong Kong University of Science and Technology. Dr Yu has published in a few international refereed journals such as the *International Journal of Intercultural Relations*, *Journal of Multilingual and Multicultural Development*, *Language Teaching*, and *Australian Review of Applied Linguistics and Educational Studies*. Cross-cultural adaptation and motivation in SLA, study abroad, willingness to communicate, learning strategies, and motivation are her research expertise.

Man Tak Yuen is an associate professor and deputy director of the Centre for Advancement in Inclusive and Special Education (CAISE), the Faculty of Education University of Hong Kong. He is a counseling and educational psychologist. His current research is investigating links among students' life skills and talent development, self-efficacy, connectedness, purpose and meaning in career development, and school-based guidance and counseling programs. He serves as the director of the Doctor of Education Programme. He coordinates courses in gifted education and career development. He has published in leading journals in these areas. He has

served as the founding editor of the journal *CAISE Review* and associate editor of *Journal of Asia Pacific Counseling* and *Pastoral Care in Education*, as well as an editorial board member and guest editor for the *Asian Journal of Counselling*.

Charles M. Zaroff is an assistant professor of psychology at the University of Macau. His current research focuses on dimensional and cultural aspects of psychopathology and the neuropsychological bases of such, particularly from a developmental perspective. He has a PhD in psychology, with a subspecialty in neuropsychology, from the City University of New York, and is a licensed psychologist in the state of New York.

Min Zeng is a lecturer at the Center for Academic Development at Victoria University of Wellington (VUW). Prior to her appointment as lecturer at VUW, she served as a lecturer at the Center for the Enhancement of Teaching and Learning at the University of Hong Kong, where she oversaw the institutional survey on research postgraduates, coordinated postgraduate supervision workshops for new supervisors of the research students, and taught and coordinated a compulsory certificate course for tutors and lab demonstrators. Her main research interests are teaching and learning and conceptual change, with a particular emphasis on these issues in a cross-cultural context.

Qiao Ping Zhang is a lecturer at the Department of Curriculum and Instruction, the Chinese University of Hong Kong. His research interests include curriculum reform, teachers' beliefs, and professional knowledge.

Ning Zhou received her bachelor's degree in Beijing Normal University and master's degree in The University of Hong Kong. She is interested in the role of teacher-student relationships in student motivation. She has investigated the perception of Chinese and American students of teachers' controlling behaviors and their role in students' learning motivation. She is now working as an educational psychologist in the ISF Academy and providing psychoeducational services to the students, teachers, and parents there.

Part I
Introduction

Chapter 1
Advancing Psychological Studies on Asian Learners: Honoring the Legacy of David A. Watkins

Ronnel B. King and Allan B.I. Bernardo

Abstract We introduce the aims of the book and provide an overview of the different chapters included in the edited volume. The chapters cover a broad spectrum of research on Asian learners and their learning experiences with topics ranging from more microlevel processes focusing on beliefs, self-related constructs, approaches to learning, motivation, goals, and well-being to larger macro-level psychological phenomena such as socio-contextual factors and broader sociocultural influences. We also highlight David Watkins' legacy to cross-cultural and educational psychology and dedicate this book as a Festschrift in his honor.

Asian students comprise some of the highest-achieving and lowest-achieving students in the world. International tests such as Trends in International Mathematics and Science Study (TIMSS) and Program for International Student Assessment (PISA) have usually shown students from South Korea, Hong Kong, Singapore, Taiwan, and Japan to be the top performers. However, the bottom ranks are also populated by Asian countries such as Indonesia, Qatar, Oman, Saudi Arabia, Bahrain, Kyrgyzstan, and India (Martin, Mullis, & Foy, 2008; Mullis, Martin, & Foy, 2008; OECD, 2010). These disparities are poorly understood with most of the educational research coming from a thin slice of the world's population, particularly from North America and Western Europe.

Asians comprise 2/3 of the world's population. The most populous countries in the world are found in Asia: China and India, which together comprise 19 and 17 % of the global population. The largest ethnic groups are also found in Asia (Han Chinese

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and Bengali Indian) (Avakov, 2010; Haub, 2010). Given their great numbers, which is only matched by poor understanding, this book aims to address this gap and contribute to scholarly knowledge on Asian learners. Understanding Asian learners is both theoretically and pragmatically important. As Pajares (2007) argued,

> The critical questions in education involve matters that cannot be settled by universal prescriptions. They demand attention to the cultural forces that shape teaching and learning. Consequently, research findings and generalizations drawn from educational psychology… cannot be taken as general rules that are independent of contextual variation. Instead, they must be understood as being bounded by a host of situated, cultural factors that must be attended to if they are to have any, as William James termed it, practical or cash value. (Pajares, 2007, p. 19)

Therefore, the aim of this book is to understand the cognitive, motivational, developmental, and sociocultural aspects of the Asian learner's learning experiences, by showcasing a range of empirical and review papers that consider the characteristics of the Asian learner's experiences as it is shaped by both particularities of diverse educational systems/cultural milieus and universal principles of human learning and development. We hope to stimulate a lively discussion on this area by inviting scholars whose work could help us understand this understudied population from a distinctly psychological perspective.

Honoring David Watkins

The second aim of this book, which is closely intertwined with the first, is to celebrate the scholarly achievements of David Watkins who has pioneered research on the Asian learner. This book is also intended as a Festschrift in his honor. His two books with John Biggs entitled *The Chinese Learner: Cultural, Psychological, and Contextual Influences* (Watkins & Biggs, 1996) and *Teaching the Chinese Learner: Psychological and Pedagogical Perspectives* (Watkins & Biggs, 2001) were trailblazers in mapping the topography of Asian educational psychology. They have inspired generations of cross-cultural, cultural, and educational psychologists and have influenced psychological research on education in the last 15 odd years.

David has been a very prolific scholar producing more than 200 refereed journal publications, 36 book chapters, and six edited books in the span of his career. As of writing, his total citation count in Google Scholar is an impressive 9600+, and his H-index is 48. He has more than 150 publications which have been cited at least ten times. His research has spanned a broad range of areas such as educational psychology, cross-cultural psychology, social psychology, and psychometrics. His key research specializations include self-esteem, learning strategies and motivation, conceptions of teaching and learning, forgiveness, cross-cultural psychology, and methodology. His magnum opus *The Chinese Learner: Cultural, Psychological, and Contextual Influences* has been cited 863 times as of this writing. His other book *Teaching the Chinese Learner: Psychological and Pedagogical Perspectives* volume has been cited 428 times.

Indeed, while David's initial research has focused on Chinese students given his academic appointment in Hong Kong, his pioneering cross-cultural approach in educational psychology also led him to study students from other Asian countries like Nepal, the Philippines, Malaysia, and from other non-Asian countries like Nigeria, Hungary, South Africa, and Australia (Watkins, 1995, 1998, 2000, 2003).

We wanted the current volume to expand its conceptual and empirical breadth by including scholars whose work focuses on Asian students from a wider range of countries and educational systems. The first wave of scholars has mostly focused on East Asian students which have also been termed as Confucian heritage cultures (CHC). Such an approach has proven fruitful and generative. However, we believe that the time has come to include research from other parts of Asia. Thus, in this volume, we invited renowned scholars whose work focuses on students from Southeast Asia and West Asia (or the Middle East) aside from those working in East Asia.

Aside from his intellectual achievements, David has also touched the lives of generations of scholars who are indebted to his mentorship. David has supervised a total of 36 research postgraduate students at The University of Hong Kong including the first editor of this volume (Ronnel King). Many of these students have made a name for themselves in different parts of the world such as Hong Kong, Macau, China, Singapore, and New Zealand among others. We invited some of these mentees to share their testimonials about David as a supervisor, mentor, and friend:

> In the past two decades, I have been working on conceptions of mathematics and the Chinese Learner's phenomenon. These two were not foci of my thesis, yet they were both inspired by David (my thesis was on the psychosocial environment of the mathematics classroom). Towards the end of my study, David suggested that I should look into the notion of mathematics understanding. That not only came up with a couple of papers but led me to the investigation of the conception of mathematics. And since I worked on the Hong Kong classroom, I began to look into the Chinese learner's phenomenon. These two proved to be extremely fruitful fields and still possess potential for further research and publications. One can see how our mentor helps us in completing our thesis, but look far beyond in developing our academic lives.–WONG Ngai Ying Wong (Chinese University of Hong Kong, Hong Kong)
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> David is one of the best supervisors I have met. He allows me to explore the research fields I like so that I can freely pursue my research interests. Without his insight into research on culture, it will not be so easy for me to find the joys of psychological thinking. I feel fortunate to have David guide the beginning of my research career. –DU Hongfei (University of Macau, Macau)
>
> David has been a guiding influence in my academic life for thirteen years. Before I knew David, I was an English language teacher in a mainland Chinese university. My experience with my students triggered a lot of questions in my mind on how the learning of English influenced my students. One day, my brother accidentally mentioned that a friend of his was leaving for Hong Kong for a PhD project with questions in her mind. It inspired me to answer my own questions. I started to browse the internet to know what professors were doing in that university. On David's academic profile, "cross-cultural psychology" caught my attention. It sounded like something which could answer my questions. But I was not sure. I wrote an email to David, with a lot of curiosity and expectation but little hope for a reply. Very soon, I got a warm reply from David! Some of his replies later were even sent out just after he got robbed in Europe! It was through David's guidance and approachability that I started my adventure on "cross-cultural psychology". He never hesitates to give me

his professional guidance, father-like care, and continuing mentorship. There are times when life pushes me away from my research interests. David has always been there encouraging me to pursue my interests and showing constant confidence in me.–ZENG Min Lily (Victoria University of Wellington, New Zealand)

There are a few important and happy moments in my life that I will never forget, some of them were created and witnessed by my dearest PhD supervisor, Professor David Watkins. One day in March at Macquarie University in Australia, I checked my emails as usual without realizing it would be the happiest day ever after I read the email from David. I was so excited to know that I would be able to do my PhD under a world-famous cross-cultural psychologist in one of the best universities in the world. David was super great as a supervisor who designed a wonderful learning and research experience for me, who was so quick in replying to any enquiry about research, who read my draft thesis again and again, and who was always there in my big days such as confirmation and viva. The day when I attended my PhD congregation, my heart was filled with gratitude and respect: David, you are the best supervisor in the world! Thank you so much☺. – YU Baohua Lucy (The Hong Kong Institute of Education, Hong Kong)

David is not only an excellent researcher who made significant contributions to educational research, but also a very responsible and helpful supervisor. In a patient, supportive, and encouraging way, he was always ready to give me insightful and constructive feedback on my research, which stimulated me to work harder and make further progress. His guidance and influence also goes beyond my doctoral research. Frequently, I received articles from David with the message "Wenshu, this might interest you." He inspired me in many other interesting research areas, especially those about cross-cultural differences in student learning, in which I continue to do more research. I am also very grateful to David for the high expectation that he has shown to me, which always motivates me to do my best in my teaching and research. – LUO Wenshu Serena (National Institute of Education, Singapore)

I am proud of being one of David's PhD students. Each time when I felt I was "lost" in my research, and sent him emails to ask for help, he gave me replies very quickly to guide me to work on the right track to achieve my research objectives. It's funny that at the very beginning of my graduate study at HKU, I didn't have a strong sense of doing research about self-concept (one of David's key research interests he has studied for over twenty years). I guess I had so many research ideas at that time. When I told David about this or that research idea, he showed his understanding and support. He also showed his concern with what key references I was reading regarding my research idea. To be familiar with theoretical and empirical advances in the research area I am interested in is always David's reminder of developing my research. After several months of searching for what I really felt interested in among various topics and reading references, I came back to my "academic home" bringing books he lent me (one of them was Prof. John Hattie's book: "Self-concept"). "David, this topic is what I feel very interested and I really want to study," from that moment, the real journey started. David and I designed and completed a longitudinal intervention study on self-concept enhancement in mainland China. I have never ever thought I would be able to achieve an international PhD highly commended award in the research area of self-concept. But this became true in 2013 under David's great supervision. When I look back at my PhD journey, frankly speaking, it was very tough. But, what David has taught me, his great support, his timely feedback, his patience, his encouragement motivated me to hold on not only in this journey, but also in my present post-doctoral academic journey. – YANG Lan Joy (The Hong Kong Institute of Education, Hong Kong)

I would like to express my profound thanks to Professor David A. WATKINS, who was my primary supervisor before the probationary period of my PhD study in HKU and continued to be my co-supervisor after his retirement till I finished my doctoral degree. My study progress was a bit slow especially after I delivered my baby in the second study year. David's continuous encouraging words helped me move forward. He always dedicated himself to listening to and answering my questions. For me, David is the kind Santa Claus; he knows

what I need, brings me the right "gift" and makes me peaceful and confident in my research journey. As a professor with a tight schedule, he always looks relaxed and enjoys his work and life. David has shown me a good example to be a productive researcher, an experienced supervisor and a nice friend. I am so proud of being one of his students. – JI Mingxia Rina (The Hong Kong Institute of Education, Hong Kong)

I had a significant trouble in the first two years of my study. Although examiners gave my PhD proposal a pass, I felt it lacked theoretical support and I was not so sure about its focus. My first supervisor was very critical and always not available for consultation. I lost the confidence to proceed. When I was asked to evaluate the supervision of my study in the end of my second year, I dallied and finally put down "not satisfied". I did not expect anything to happen. Yet, after two months David called me and said that he would act as my supervisor instead. I saw David only a few times in my PhD journey. Yet, each time he assured me and gave me the direction to proceed. He suggested me to publish the pilot study and the paper got accepted!. Lastly, David asked me to try Structural Equation Modeling with my model. I fortunately succeeded in doing that. In the final stage, I hid in a hotel room to do the write-up. I was so thankful that David always gave me very quick feedback on what I had written. He even urged me to submit the thesis earlier than I thought. Thank God! Eventually, I finished my study in slightly more than five years, despite the fact that I had a full-time job and had a "late start". My thesis was also highly praised by the external examiner. When David met me in his retirement party, he said to me "You seem to finish your study very easily". I didn't know what to say. I was overwhelmed by gratitude. He is an expert in advising PhD students! – PANG I-wah (The Hong Kong Institute of Education, Hong Kong)

To these, Ronnel adds his own testimonial as editor and David's former student.

For me (Ronnel), David has always been a nurturing and inspiring mentor. I am honored to be a member of the last batch of students to be mentored by such a luminary. I remember my first meeting with him in his office where he asked me whether I really wanted to become an educational psychologist! I was quite intimidated at that time (and began to doubt whether I really made the right decision). It was only later when I got to know him more that I knew it was said in a jest! I have come a long way since that first meeting, and I owe a big part of what accomplishments I have to David. He has been supportive of my ideas, regularly sending me papers which he thought would be of interest. Despite his extremely busy schedule, he was always prompt in returning feedback which were always critical yet encouraging. Now, when I meet David he jokingly reminds me of my scholarly duty to increase his H-index! Surely a tall order, but one that also belies his deep confidence in me. When I look back on my own journey, I realize how deeply David has shaped my own identity as a teacher and a researcher. – Ronnel B. King (The Hong Kong Institute of Education, Hong Kong)

Although the second author (Allan) was not David's student, he also adds his own testimonial as a senior colleague in psychology and education research:

David A. Watkins's body of work pushed me towards cultural-related research in educational psychology even before I met him. His publications were very concrete templates and benchmarks for the kind of educational psychology research that seemed to be sensitive to the cultural experiences of the Filipino learners and teachers I was studying. When I finally got to meet David in a psychology of learning conference in The University of Hong Kong, he was such a calm and reassuring presence. I felt intellectually safe and affirmed in the presence of this senior scholar because he exemplified the same scholarly values that I have come to adopt. More importantly, David was a most supportive and encouraging colleague, and so even if I was never his student, I felt that my interactions with him have nurtured important aspects of my scholarship and my identity as a psychologist. – Allan B.I. Bernardo (University of Macau, Macau)

Overview of the Volume

One of the best ways to appreciate a scholar is to show how his work has inspired others in their own intellectual quest. In this book, we sought to extend the scholarly contributions of David to Asian educational and cross-cultural psychology by inviting internationally recognized scholars – many of them were former colleagues and mentees – who have been inspired by David and his work to share their research on Asian learners.

The book is divided into eight parts with a total of 38 chapters, excluding this introductory chapter and the epilogue. A wide range of topics pertaining to the psychology of Asian learners is included. The topics range from more microlevel processes focusing on beliefs, self-related constructs, approaches to learning, motivation, goal orientations, and well-being to larger macro-level psychological phenomena such as socio-contextual factors and broader sociocultural influences.

The book begins with an introductory chapter from Dennis McInerney, a long-time friend and collaborator of David. McInerney takes readers on "a journey through David Watkins' research" that has spanned nearly three decades. He provides an overview of David's work which has been at the forefront of cross-cultural educational psychology and gives an interesting account of how his own research has dovetailed with David's research. This has led to a number of groundbreaking collaborative studies and has inspired questions that will occupy the minds of the next generation of scholars.

In Part II, "beliefs about learning and schooling," we include chapters which focus on Asian learners' beliefs related to learning in schools and the particular sociocultural milieus that give rise to these beliefs. These studies cover a wide range of geographical regions from Chinese students in the USA to students in Macau, Korea, and the Philippines. In Chap. 3, Li provided an overview of her research on Chinese beliefs about learning and how they see an ideal learner. She contrasted the Chinese virtue-oriented model of learning with the Western mind-oriented view and elucidated the key role that culture plays in shaping these beliefs. She ended her chapter by discussing her current work on the learning beliefs of Chinese immigrants and the implications of these beliefs for overall intellectual development. In Chap. 4, Choi focused on the epistemological beliefs of Korean students. She found that Korean students tended to value learning effort more than expert knowledge or authority which contradicted some prevailing stereotypes. The discussion focused on how Korean traditional values as well as the changing educational landscape have shaped these epistemological beliefs. In Chap. 5, van Schalwyk and Hoi explored Macau students' perceptions about and reasons for going into higher education. They found that Macau youths may perceive higher education more as an opportunity to cultivate *guanxi* in their planning for the future rather than as a means to acquire knowledge. They ended the chapter with a discussion on how sociocultural values have shaped Chinese students' perceptions about tertiary education. In Chap. 6, Salanga and Bernardo explored Filipino students' reasons for being amotivated in school. Their qualitative findings surfaced core themes related to beliefs

about the self, the teacher, and the social support system. They attempted to link these findings to existing theorizing on amotivation in Western contexts. They also highlighted a number of culturally specific findings in the Philippine context.

Part III focuses on key self-related processes such as self-concept (which is a very strong theme in David's own research) and self-efficacy among students in East Asia and West Asia. In Chap. 7, Yang and Arens explored the applicability of Western theorizing on self-concept among low-achieving students in Mainland China. Key issues related to the domain specificity, factor structure, and nomological network of self-concept were discussed. In Chap. 8, Abu-Hilal, AlDhafri, AlBahrani, and Kamali studied the differential socialization of boys and girls in the Arab culture and discussed its implications for goal orientations, academic achievement, and self-concept. They reviewed the psychometric properties of prominent psychological instruments developed in the West and argued how these instruments need to be modified to suit the Arab context. In Chap. 9, AlDhafri reviewed existing research on teacher's self-efficacy beliefs in the Arab context. He analyzed the nomological network of self-efficacy, examined the psychometric properties of existing scales measuring self-efficacy, and outlined directions for future research on teacher self-efficacy beliefs in the Arab context. In Chap. 10, Fong and Yuen highlighted the excellent academic achievement obtained by Chinese students in international studies compared to their Western peers. They discussed the role of connectedness and self-efficacy and how these may account for the high academic achievement of Chinese students.

Part IV on "approaches to learning" presents four studies on students' deep, surface, and achieving learning approaches and how these are linked to key psychological variables. Approaches to learning is an important theme in the research work of David. The samples in the featured studies are diverse coming from Australia, Indonesia, Malaysia, P. R. China, and Hong Kong SAR. In Chap. 11, Kember recounted his research on the "paradox of the Chinese learner," a research topic that is also close to David Watkins' heart. He challenged the conventional stereotype that Chinese learners are surface learners. He showed that when Chinese students memorized materials, they combined this with attempts to reach understanding. In Chap. 12, Xie conducted a study examining the relationship between the big four personality traits (i.e., psychological types) and students' approaches to learning. She showed that Chinese students who are more extraverted, more intuitive, and more thinking-oriented were also more likely to use deep learning strategies. In Chap. 13, Goh explored the association between Malaysian preservice teachers' approaches to learning and several key outcomes such as acquisition of generic skills, academic achievement, and overall satisfaction with their program. Results indicated that preservice teachers who engaged in a deep learning approach perceived that they also learned more generic skills and were more satisfied with their program. In Chap. 14, Liem studied how cultural value dimensions and learning approaches were linked among Australian and Indonesian students. Utilizing the "unpackaging cultures" approach (Matsumoto & Yoo, 2006), he found that cross-cultural differences in approaches to learning were mediated by cultural values.

Part V on "learning motivation" contains five chapters on motivation using a diverse range of theoretical perspectives. Maulana, Lems-Lorenz, and van der Grift focused on how autonomous motivation predicted academic engagement among Indonesian students in Chap. 15. Interestingly, they found that identified motivation was a more important predictor of engagement compared to intrinsic motivation. These findings are somewhat different from what self-determination theorists in Western contexts would have expected. In Chap. 16, He and van de Vijver discussed a paradox in the PISA dataset: within each participating country, there is a positive correlation between students' learning motivation and achievement but when aggregating the data at country level, this correlation becomes negative. Using PISA data across 64 countries, they found that three measures of culturally preferred scale usage (cultural response style, overclaiming, and anchoring vignettes) partially explained the paradox of the negative association between motivation and achievement at the country level. In Chap. 17, Ye and his collaborators examined the role of curiosity using a longitudinal study in a general education context in Hong Kong. They found that curiosity predicted learning outcomes in general education which later boosted subsequent curiosity. In Chap. 18, Ilustrisimo looked at the association between time perspectives and academic motivation among Filipino students. She showed that students who had a positive view of the past (i.e., past time perspective) as well as those who were future oriented (i.e., future time perspective) were more likely to be more motivated in school. In Chap. 19, Da Silva narrated how research on Japanese students' motivation to study English as a foreign language evolved over the last three decades.

Part VI on "learning goals" contains six chapters that focus on a wide range of goal constructs. One of David's key research contributions in the latter part of his career is showing the need to examine a wider range of goals in cross-cultural settings. He found Western educational psychologists' exclusive focus on mastery and performance goals to be limiting (Watkins et al., 2002, 2003). The authors in this chapter take on this challenge and focus on a diverse set of goals such as effort goals, vertical vs. non-vertical goals, power goals, and social goals.

In Chap. 20, Yeung, Han, and Lee examined the role of effort goals and competence in predicting Chinese students' academic achievement using a longitudinal design. They found that there seems to be a developmental change with achievement becoming more associated with effort goals as students mature. In Chap. 21, Fwu, Wang, Chen, and Wei highlighted the distinction between vertical goals (based on the social expectations of significant others) and non-vertical goals (based on one's personal interests). They found that goal pursuit and success/failure were closely related to how morally sound students were perceived. For example, they found that in success situations, hardworking students pursuing vertical goals were given greater approval by parents and teachers than those pursuing non-vertical goals. In failure situations, students striving to achieve vertical goals had the best moral image, while those who do not work hard had the worst moral image. In Chap. 22, Cheng, Shu, Zhou, and Lam reviewed their impressive research program on three important aspects of Chinese students' motivation – social goals, teacher controlling behavior, and success/failure experiences. Using an integration of

etic-emic approaches, they found that psychological constructs may carry different meanings in Chinese and Western settings. However, they also found certain psychological processes that were invariant across cultures. In Chap. 23, Ganotice and Yeung pointed out the limitations of variable-centered approaches and used person-centered techniques to separate students into homogenous groups based on their goal profiles. They found that students who were high in mastery, performance, social, and extrinsic goals (multiple goal profile) as well as those who were high in mastery, performance, and social and average in extrinsic goals had the most adaptive outcomes. In Chap. 24, Nasser explored the associations among teacher support, peer support, social power goals, gender, and academic achievement of Qatari students. He found that gender and social power were not significantly associated with achievement, but teacher/peer support was a positive predictor of academic achievement. In Chap. 25, King and McInerney investigated how social goals were associated with learning strategies in a sample of Hong Kong students. They found that social concern and social status goals were positively associated with deep and achieving learning strategies.

Part VII on "adjustment and well-being" goes beyond the traditional focus on achievement and learning outcomes and emphasizes the importance of socio-emotional well-being in the learning process. In Chap. 26, Zeng studied how Mainland Chinese students adapted to a sibling culture as they moved to Hong Kong for further studies. She focused on their social and academic integration in Hong Kong and used conceptual change as an analytical framework to understand the types of cognitive conflicts they experienced in their adaptation as well as how they responded to these conflicts. In Chap. 27, Yu studied how Asian international students pursuing undergraduate and postgraduate degrees in Australia adapted to their new environments both socioculturally and academically. She found that English language proficiency and integrative motivation were key predictors of sociocultural and academic motivation. In Chap. 28, Mesurado, Salanga, and Mateo investigated how flourishing was associated with the fulfillment of basic psychological needs for autonomy, competence, and relatedness among Filipino students. They found that although autonomy, competence, and relatedness were all significant predictors of flourishing, the most important predictor was relatedness. They discussed these findings in light of the collectivist orientation of Philippine society. In Chap. 29, Dong, Bernardo, and Zaroff examined factors that influenced the mental health of Mainland Chinese postgraduate students in Macau. They found that higher levels of acculturative stress – but not academic stress – were associated with poorer mental health outcomes and showed the role of resilience in facilitating better mental health. In Chap. 30, Low, King, and Caleon investigated whether positive emotions among Singapore students predicted well-being and motivation. Using Fredrickson's (2013) broaden-and-build framework, they found that positive emotions were associated with higher levels of well-being and greater academic motivation. In Chap. 31, Datu, Valdez, and King studied grit and how it predicted key psychological outcomes in the Philippine setting. They encountered a number of surprising cross-cultural differences. They found that the structure of grit in the Philippine context was different from what has been found in the West.

Part VIII on "learning environments" focuses on the socio-contextual aspects of the learning process wherein Asian learners are embedded. In Chap. 32, Caleon, Tan, Wui, Leen, and King studied at-risk Singapore an students and provided compelling evidence for the crucial role of teacher autonomy support, teacher competence support, and teacher trust as facilitators of academic engagement. In Chap. 33, Wong, Ding, and Zhang emphasized the role of the psychosocial classroom environment in enhancing Chinese students' learning outcomes. They provided an overview of their research on *lived space* articulating how teachers together with the curriculum and school settings shape the space students live in. This space has an important impact on students' cognitive and affective outcomes, which are construed as students' *outcome space.* In Chap. 34, Ong and Nie conducted an experimental study contrasting the effects of mastery learning experiences vs. peer modeling on creative self-efficacy. Results showed that only peer modeling but not mastery learning experiences led to increases in creative self-efficacy.

Part IX on "sociocultural influences" takes a more macro-view by focusing on the sociocultural influences that impact Asian learners. These larger sociocultural processes include (but are not limited to) societal values, social axioms, and government policies. In Chap. 35, Ku focused on the role of materialism in learning. Using cross-sectional, longitudinal, and experimental evidence, she showed that materialism led to poorer learning outcomes, shifting students away from a mastery orientation to a performance orientation. Her chapter suggests that the values of an increasingly consumerist society are important factors impinging on students' learning. In Chap. 36, Luo and Yeung explored how self-construal was associated with Singapore an students' beliefs about ability and learning practices. They found that an interdependent self-construal positively predicted incremental beliefs, which were positively associated with preference for cooperative and competitive learning. An independent self-construal was positively associated with preference for competitive learning. In Chap. 37, David investigated the association between social axioms and academic achievement among Filipino students. He found that fate control negatively predicted Filipino students' academic achievement. In Chap. 38, Tao provided an overview of her research program on socially oriented achievement motivation (SOAM) which she argued is more salient in Chinese contexts compared with the individually oriented achievement motivation (IOAM) which is more common in Western societies. She showed that SOAM was associated with a distinct pattern of cognition, behavior, and academic outcomes. She ended her chapter by discussing how SOAM model could enrich motivational theorizing. In Chap. 39, Rao, Ng, and Sun considered how changes at the policy and pedagogy levels are shaping the learning experiences of young children in Hong Kong. They emphasized the importance of the State, teacher characteristics, and traditional Chinese beliefs in order to understand preschool experiences of Hong Kong students.

In the epilogue, we observe how the collection of chapters in this Festschrift draws from and expands on the scope and approaches of Watkins and Biggs' (1996) trailblazing book. We focus on issues related to what it means to define and to study a category of learners ("Asian learners"), how culture relates to learning processes, and which methods are most appropriate for studying a wide range of psychological

processes involved in the learning experiences. The present collection highlights how contemporary work has extended and built on Watkins work. We also point to possible areas of furthering the legacy of Watkins in studying the cultural aspects of learning by focusing on Asian learners.

Conclusion

This collection of scholarly papers is a testament to the legacy of David Watkins. Like the students and readers of David Watkins' body of research, we hope that readers of this volume are similarly inspired to continue the work of understanding the psychology of Asian learners. We also hope that this goal of understanding the psychological experiences of different types of Asian learners will be seen by the readers as a substantial contribution toward a fuller assessment and development of psychological theories of learning in schools.

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Chapter 2
A Journey Through David Watkins's Research and Contribution to Cross-Cultural Psychology

Dennis M. McInerney

Abstract The first time I met David Watkins was a long time ago. I was sitting next to him on a bus going to the International Association of Cross-Cultural Psychology conference dinner. The place was Newcastle, and the year was 1988, an auspicious year as I turned 40 and had just submitted my doctorate for examination, the topic of my doctorate being *The Psychological Determinants of Motivation of Non-Traditional Aboriginal Students*. My "very erudite" paper presentation at the conference was entitled *A cross-cultural analysis of student motivation in school settings: An Australian perspective.* What a fortuitous event that I was seated on a bus next to David who was also developing a strong interest in cross-cultural research on learning and motivation. What I had not anticipated during the bus trip to a wonderful Hunter Valley winery and the later conversation we had during dinner and throughout the conference was what an argumentative couple we were. It seemed that when I said "white," he would say "black," and when he said "fast," I would say "slow." I think these dynamics characterized our long friendship and professional relationship through to today.

The Background

The late 1980s were quite heady days when cross-cultural psychology was developing an even greater "head of steam" under the enormous influences of luminaries such as Harry Triandis, William Gabrenya, John Adamopoulos, Walt Lonner, David Matsumoto, Richard Brislin, Gustav Jahoda, Cigdem Kagitcibasi, and Ype Poortinga. This "head of steam" was concerned with the appropriateness or otherwise of mainstream psychological theorizing, methodology, and analyses in cross-cultural settings. This appropriateness was particularly being scrutinized because of

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the large influx of students from non-Western countries studying psychology in the West challenging current methodological orthodoxy both in their doctoral studies and later as practitioners and researchers in their home countries and cultures (see, e.g., Cross-Cultural Psychology Bulletin, 2009, 43(1) for a review).

For a period of time, albeit locked away in the cross-cultural research literature, critiques were leveled at researchers' failure to establish that behaviors and responses being examined cross-culturally were functionally, conceptually, or metrically equivalent, that the constructs and tools used were culturally appropriate, and the making of comparisons between groups based solely on the mean differences between groups with "culture" being used as the independent variable. Culture was, and still is, a very "wooly construct" when used as an independent variable. Indeed, cross-cultural measurement "subtlety" was in its infancy, with instruments such as personality and motivation surveys being used without much, if any, attention being paid to their psychometric properties vis-a-vis use with non-Western background participants and very often from non-English-speaking backgrounds. At the time, little or no attempt was made by mainstream researchers to consider the localized dimensions of concepts being studied (later to be referred to as the "emic" level of research); little detailed consideration was given to the mediating processes that might intervene between culture and measured outcomes (such as achievement); undue emphasis was given to cultural deficit and deprivation models to explain the differential performance of various cultural groups on desired outcomes; and finally, there was confusion between cross-cultural and cross-ethnic parameters of research (many studies failing to control for the range of shared experiences in cross-ethnic studies) (McInerney, 1992).

Among the terms that began to become the "language" of what was by then more frequently referred to as cross-cultural psychology were "emics" and "etics," "collectivism" and "individualism," "interdependence" and "independence," and "subjective culture." There was an increasing move to "indigenize" the methodologies of research and acknowledge that the process of research as well as the data, analyses, and findings were rightly the preserve of the cultural communities that contributed to the research. Epitomizing these developments was the publication of the first *Handbook of Cross-Cultural Psychology* (1980–1981) that appeared in six volumes and was enormously influential on my thinking, as were the *Handbook of Culture and Psychology* (Matsumoto, 2001) and the *Handbook of Cultural Psychology* (Kityama & Cohen, 2007).

David Watkins's Research Interests

David Watkins was at the forefront of these developments, and my chapter will recount, albeit in a highly condensed and idiosyncratic way, both his interests in the area of cross-cultural psychology and his enormous contribution to the area. My analysis is based upon an annotated bibliography of his work.

Probably as a result of his M.Sc dissertation, the early work of David, from about 1972 through to 1980, was mainly concerned with measurement issues related to self-related constructs such as self-esteem, attitudes, social desirability, personality, and subjective measures of a range of other psychological characteristics. These early studies, with their emphases on both measurement validity and self-processes, well prepared David for his later incursions into psychological measurement within cross-cultural contexts. David's early articles were, in large, generated during his period as a Research Fellow at the University of New England, Australia.

While continuing his interests in measurement issues and student attitudes, after a move to the Australian National University in 1980 and later to the University of Canterbury, New Zealand, there was a shift in David's focus to considering methodological issues within a more explicitly cross-cultural context, namely, the Philippines. Of particular interest was the testing of the validity and reliability of a range of established tests such as the Coopersmith Self-Esteem Inventory and the Biggs' Study Process Questionnaire (Watkins & Astilla, 1980a, 1980b; Watkins & Hattie, 1980). In alignment with these studies was David's burgeoning interest in the correlates and predictors of school engagement and success, variables such as field independence, locus of control, intelligence, self-esteem, and approaches to study, all ripe for investigation in cross-cultural settings. Underlying his work, if not so clearly articulated in these earlier articles, was David's belief that without demonstrably valid and reliable measures to use in cross-cultural contexts, results were spurious. Major collaborators at the time were John Hattie and E. Astilla.

Emerging from this early work were some interesting findings, patterns of relationships between independent and dependent variables such as causal attributions for success and failure which did not conform to Western predictions (Watkins, 1982; Watkins & Astilla, 1980a, 1980b). Intriguingly for David, some of these patterns suggested that there may be underlying differences in the way non-Western students such as Filipino students construed their world, what was important, and not so important and that these differences appeared to be embedded in cultural socialization processes (Watkins, 1981, 1982, 1988). This early research also began to touch on issues related to whether differences between Western and non-Western groups were "true results" or artifacts of methodology. This interest in the underlying factors at play led David to complete studies directly comparing the results of his Filipino samples with Australian samples. In a number of these studies, the "fit" of the items and scales used appeared less satisfactory for the Filipino samples (Watkins & Hattie, 1981; Watkins & Alfon, 1988; Watkins & Regmi, 1992a, 1992b) highlighting the issue of the cultural appropriateness of the testing and methodology used. This line of reasoning guided David's cross-cultural research through much of the 1980s and into the 1990s, although he maintained an interest in the more mainstream issues of testing the reliability and validity of a range of psychometric instruments, and the correlates of achievement at school and tertiary study. Many of the studies were conducted in the Philippines but without a cross-cultural element in the sense that no direct Western comparison group was included in the studies.

Watkins and the Asian Learner

In 1989, David moved to the University of Hong Kong which provided a water-shed event defining his interest in the applications of psychological theorizing and testing within cross-cultural contexts and, in particular, in collaboration with a number of his doctoral students, an increasing focus on the Asian learner. While the focus initially continued on Filipino learners, the reach was extended to Nepalese, Indians, and Nigerians. Initial findings of interest, including the finding that the distinction between self-esteem and self-concept was much clearer with Filipino and Indian students than with American and New Zealand students (Watkins & Dhawan, 1989) and that rote learning, often considered to be the bulwark of East Asian success at learning, was not as important as the stereotype suggested (Watkins & Regmi, 1992a, 1992b; Watkins, Regmi, & Astilla, 1991) were the "engines" driving further investigations that were to reveal many consistencies with Western research as well as many misconceptions related to learning in the Asian context. One consistent finding, repeated over many studies, was the positive relationship between "deep" learning and achievement outcomes across a range of cultural groups studied by David and his colleagues.

The crystallization of the cross-cultural issue that was to become an important cornerstone of David's research is very well articulated in the following abstract from his article "The basis of self-esteem of urban and rural Nepalese children published" in the *Journal of Social Psychology*, 1993 (with M. Regmi).

> Recent research reviews have emphasized the necessity of recognizing the multidimensional nature of self-esteem. There are now a number of instruments that reflect this property of the self. They, like most Western measures of self-esteem, assume that all individuals share the same components of self-typically covering such areas as school, family, friends, and physical appearance and abilities. However, the relevance of such components of the self for non-Western cultures must be questioned. The purpose of this article is to try to determine the basis of self-esteem of Nepalese children from poorer, more traditional rural backgrounds and from richer, more modernized urban backgrounds. This article calls into doubt the appropriateness for Nepalese children of dimensions commonly tapped in typical Western self-esteem instruments, such as friends, family, and physical appearance. Moreover, the Nepalese children showed less agreement among themselves than has been found in previous New Zealand and Filipino samples. It must be questioned, therefore, whether Nepalese children share salient self-dimensions that are similar enough to warrant the development of a separate Nepali self-esteem instrument. (p. 255)

The first citations I could find to the use of Chinese samples were in 1991 (Watkins, Biggs, & Regmi, 1991), and from this date, an increasing amount of his research was conducted within the Chinese Hong Kong environment. From this time, he also developed a corpus of work related to examining learning processes among Hong Kong Chinese students and the validation of various psychometric instruments for use with the Hong Kong Chinese as well as extending his investigations to a wide range of other non-Western groups. Many of these instruments, such as the Self-description Questionnaire (SDQ), were shown to have good construct validity and reliability for the Asian and other non-Western samples (Watkins, 1996;

Watkins, Akande, & Mpofu, 1996; Watkins, Dong, & Xia, 1995; Watkins & Qi, 1994). From time to time, Watkins challenged the validity of scales for use in non-Western societies, commenting in Watkins and Cheng (1995) that the External Control scale (of the Causal Dimension Scale) is of doubtful adequacy and that this finding might be due to cultural differences in causal attributions rather than a failing of the CDS 11 itself.

Recurrent through many articles were studies on self-esteem, self-concept, learned helplessness, attributions, individualism/collectivism, interdependent/independent self, forgiveness, student approaches to learning, and stress. For all these and a range of other topics, David seized opportunities to work with a vast number of international colleagues collecting data from many cultures to critically examine paradigms from a cross-cultural perspective. One grand study on cultural dimensions, gender, and the nature of self-concept, to which I contributed data, was conducted with collaborators from 14 very diverse countries. This particular study provided a number of interesting findings including that there may be a strong culture level interaction effect between gender and individualism-collectivism on the nature of self-conceptions and that the "family" and "social" aspects of self-concept in collectivist countries may need to be considered separately (Watkins, Akande, Adebowale Gerong, et al., 1998; Watkins, Akande, Fleming, et al., 1998; Watkins & Regmi, 1993). Also questioned was the generalizability of theoretical notions such as culture and the self (Watkins & Regmi, 1996).

Paralleling David's work at the time was a series of studies I conducted, particularly with Indigenous Australians, multiethnic Australian groups, and Native Americans where my focus of attention was on the applicability of both methodology and measurements to non-Western groups (McInerney, 1991, 1992, 1995; McInerney & Sinclair, 1992; McInerney & Swisher, 1995). In particular, I was interested in whether Western psychometric approaches could be used validly to investigate research questions in non-Western and, in particular, Indigenous communities (see McInerney, 1992) and what were the motivational determinants of their achievement at school. In summary, I found that there was strong evidence supporting the various constructs and methodologies I used in very diverse cultural groups (McInerney, 2003a, 2003c). I also found that there were few significant mean differences on self-esteem, academic self-concept, sense of purpose for schooling, and various types and level of motivation at school and that these factors were significant predictors of academic achievement outcomes for the diverse variety of cultural groups participating in the studies.

These results suggested first that far from lacking the motivation to achieve Indigenous students were more or less motivated in the same ways as the non-Indigenous groups and their achievement values appeared to be very similar to non-Indigenous children. Second, the academic self-concept of the Indigenous students was very similar to that of other non-Indigenous students. This was in contrast to a number of studies, which suggested that the self-concept of minorities was, paradoxically, higher than that of mainstream groups despite poorer school performance. Third, there were, in general, no significant differences between groups on self-esteem, sense of purpose for schooling, and sense of self-reliance. Fourth, the

simple dichotomizing of groups as individualist or collectivist was not supported by any of these studies. Groups commonly categorized as collectivist (e.g., Aboriginal and Navajo) were no more collectivist or individualist than the Anglo and other non-Indigenous groups on the measures used in these studies. This left me with a number of important findings. The first and most important finding was that, across the broad range of scales used in these studies, the similarities between Indigenous and non-Indigenous groups far outweighed any differences. It appeared from these early results that Indigenous children, even in remote locations, were motivated by the same motives and self-beliefs that influence children from Anglo and other non-Indigenous backgrounds. The findings also suggested that key variables used to distinguish Western and Indigenous groups did not appear to be salient in the school contexts studied.

These results, replicated on a number of occasions, suggested two paradoxes. First, if the motivational profiles of the Indigenous and non-Indigenous groups were so similar, why is there a difference in educational outcomes? Typically Indigenous students have lower achievement outcomes than most others at school. Second, within the Indigenous groups, there are always some who achieved well, despite the relatively poor achievement levels of the group as a whole. What is it that the successful indigenous students "have" or "do" that distinguishes them from their unsuccessful peers?

These paradoxes suggested that at least five elements needed to be considered in order to further our understanding of the motivational dynamics that influence academic achievement for Indigenous and other minority and underachieving students. First, the motivational goals examined in the McInerney research may have failed to uncover motivational goals that were more salient to Indigenous students, students' goals that, if supported in school settings, might better facilitate learning. Second, there was a need to examine the future time perspective of Indigenous and other underachieving students and, in particular, the nature of the future goals that students' hold, their development over time, and their relationship to day-to-day achievement goals and learning processes. Third, Indigenous and other underachieving students from minority cultures may be subject to a range of factors both within and outside the school setting that impact negatively on their opportunities to do well at school which do not impact in the same way or to the same degree for non-Indigenous and mainstream students. Fourth, the historical experiences of Indigenous people within assimilationist and often racist educational institutions may moderate the future goals, achievement goals, and perceived utility of schooling for these students. Finally, the quality of schooling Indigenous students received may have been inferior for a variety of reasons (e.g., isolation, poor teachers, poor school facilities, perceived irrelevance of the curriculum) predisposing these students to achieve poorly relative to more advantaged groups.

In order to examine whether some other salient issues, which might help explain the paradox of relatively poorer school achievement of Indigenous students despite little difference in school motivational profiles, had been missed in the psychometric research which forms the basis of the studies reported above, two forms of qualitative research were also conducted along with the psychometric studies. First, at

each school site, individual students were interviewed about key elements of their school motivation and goals for the future. Second, in each year of the 3-year longitudinal studies which forms the basis of the psychometric investigation of school motivation in cultural context reported in McInerney (2003b), all students were asked a series of open-ended questions to investigate what types of things motivate them to work well at school, what things made it difficult for them to do well at school, why they thought some students left school before they completed high school, and what types of things would encourage students to complete high school and to go on to some further education such as college or university. It was anticipated that there would be qualitatively different responses to each of these questions by Indigenous and non-Indigenous students and that these differences might give a clue to the reasons why Indigenous students did relatively poorly at school. There is not space in this chapter to elaborate on the findings of this program of qualitative research so I recommend interested readers to read "What Indigenous Students Think about School and is it any Different from the Anglos?" (McInerney, 2003b) and "Conceptual and methodological challenges in multiple goal research among very remote Indigenous Australian students" (McInerney, 2012; see also McInerney, Fasoli, Stephenson, & Herbert (2012). Building the future for remote Indigenous students in Australia. An examination of future goals, motivation, learning and achievement in cultural context. In J. N. Franco & A. E. Svensgaard (Eds.), *Handbook on psychology of motivation: New research* (pp. 61–84). New York: NOVA Press). What became clear, however, was the importance of combining qualitative and quantitative studies to get a deeper insight into the cultural dimensions of learning and motivation.

During this period, David's and my work was to intersect in a number of studies referred to below.

Watkins and Effective Learning

Increasingly, David focused on classrooms and effective teaching and learning and made the significant observation on many occasions that any attempts to reform education by importing ideas from one culture to another must consider the overall contexts of the societies involved (Gao & Watkins, 2002; Watkins, 2000; Ho, Watkins, & Kelly, 2001; Watkins, McInerney, & Lee, 2002; Watkins, McInerney, Lee, Akande, & Regni, 2002). Throughout these articles, Watkins challenged the stereotype regarding Asian learners as rote learners (Watkins & Akande, 1994; Watkins & Ismail, 1994; Wong, Lin, & Watkins, 1996) that was later to be more extensively investigated as the Asian paradox (see, e.g., Kember & Watkins, 2010). In particular, David and his colleagues interrogated the role played by rote learning as a pathway to understanding for Asian students. Rather than being a surface approach to learning more characteristic (at least stereotypically) of Western students (Dahlin & Watkins, 2000), David and colleagues argued that rote learning and deep learning were inextricably entwined for the Asian learner. Many of David's

investigations of the role of rote learning to the Asian learner were embedded within Confucian heritage and attributional frameworks highlighting the efficacy of repetition accompanied by "attentive effort" and a belief that effort is more important than ability (Dahlin & Watkins, 2000). In later articles, David challenged a number of other stereotypes such as the role of competition in Asian societies stating in one article that views of the nature and function of competition vary across cultures and, in contrast to the stereotype, collectivist societies can be just as, or more, competitive than individualist societies (Watkins, 2006; see also King, McInerney, & Watkins, 2012a, 2012b).

Collaborative Studies

For a period of time during the early 2000s, David and I collaborated quite closely on cross-cultural validation studies of two motivation instruments I had written, namely, the Inventory of School Motivation (ISM) and the Facilitating Conditions Questionnaire (FCQ) (Watkins, McInerney, & Boholst, 2003; Watkins, McInerney, Akande, & Lee, 2002, 2003). As indicated above, this was a particularly important period for me as I had an intense interest in the usefulness or otherwise of Western-based research methods and measurements among non-Western groups (see, e.g., McInerney, 1995). During this period, my colleagues and I conducted a large number of studies utilizing the Personal Investment (PI) Framework testing the full model in educational settings utilizing the Inventory of School Motivation (ISM; McInerney, 1988; McInerney & Sinclair, 1991, 1992; see also Flowerday & Shaughnessy, 2005 for the development of the ISM) and the Facilitating Conditions Questionnaire (FCQ; McInerney, Dowson, & Yeung, 2005) and, in particular, extended the application of PI theory to a variety of cultural groups. The results and conclusions of these studies are multifaceted. A massive bulk of empirical evidence was amassed to support the theoretical dimensions of the PI model across culturally diverse backgrounds (see McInerney, Dowson, & Yeung, 2005; McInerney, Roche, McInerney, & Marsh, 1997; McInerney, Hinkley, Dowson, & Van Etten, 1998; McInerney, Marsh, & Yeung, 2003; McInerney, McInerney, Cincotta, Totaro, & Williams, 2001; Watkins, McInerney, & Boholst, 2003; Watkins, McInerney, Akande, & Lee, 2003; Watkins, McInerney, & Lee, 2002; Watkins, McInerney, Lee, Akande, & Regmi, 2002; Yeung & McInerney, 2005).

These studies suggested that the range of goal orientations (task, performance, social, and extrinsic), sense of self (sense of purpose for the future, self-esteem, and self-reliance), and facilitating conditions for action appeared broadly valid and reliable constructs across very diverse cultural groups. Furthermore, scales of the ISM and the FCQ revealed very few significant differences between groups and predicted in similar ways achievement outcomes across groups. Even where there were significant differences; these were a matter of degree rather than kind, of little practical significance, and often ran counter to cultural stereotypes. In summary, the bulk of research indicated that, by and large, diverse groups endorsed the same educational

goals and values as each other. More specifically, mastery goals, such as task and effort, were strongly endorsed irrespective of the group; extrinsic rewards such as token and praise were moderately endorsed, whereas performance goals such as competition and social power were endorsed to a somewhat lesser extent across all groups. Sense of purpose and self-reliance were also strongly endorsed across all groups.

What clearly emerged as important predictors of academic achievement across all groups were (1) the students' values, beliefs, and goals relating to a positive sense of self, in particular, the students' positive self-esteem at school (feeling good about themselves as students), sense of purpose (having a goal of doing well at school and getting ahead in life), and sense of self-reliance (I can do this work); (2) their level of mastery motivation, in particular, task and effort goal orientations; (3) perceived parental support; and (4) the degree to which students valued education for its instrumental purpose.

While there was considerable consistency in the motivational patterns across groups, there were also significant variations. The relative importance of motivational predictors varied within groups and across groups, which provided culturally specific (emic) information with which to explore the motivational characteristics of particular groups. For example, in the McInerney (2003a, 2003b, 2003c) study, social power was a strong predictor of further education, affect, and valuing education for the Asian group but not for the Aboriginal group. Token reward was a strong negative predictor of further education for Australian Anglo, Aboriginal, and Asian groups but not for the European, Navajo, and Middle Eastern groups. Social concern varied in its salience across the three outcomes and six groups in the study. Competition appeared to be salient for all groups (except Middle Eastern) for valuing education but not for affect toward school or desire for further education. Affiliation and praise appeared to be relatively unimportant as predictors in the school setting across all outcomes and all groups.

In an extension of the McInerney research using factor analysis, Watkins, McInerney, and Lee (2002) not only tested the validity of the Chinese translation of the ISM with a sample of Hong Kong secondary school students but also set out to examine the between-construct validity of the ISM dimensions by finding out if they correlated as predicted with independent measures of Intellectual Self-Esteem (ten items measuring the intellectual self from the Chinese Adolescent Self-Esteem Scale; see Cheng & Watkins, 2000), and Surface, Deep, and Achieving Learning Strategies (Biggs, 1987; Entwistle & Ramsden, 1983). Deep learning strategies are concerned with an intention to understand by means of interrelating ideas, reading widely, and thinking independently and critically. Surface learning strategies, on the other hand, are concerned with an intention to memorize or rote learn study materials with minimal understanding. These strategies tend to be associated with fear of failure and an external locus of control, a context characterized by boredom or fear, and the assessment methods such as multiple-choice items, perceived as rewarding low-quality learning. The third, achieving learning strategies, is said to be adopted by students when the students are driven to work hard and use whatever specific strategy they feel that will maximize their chances of success. Adoption of the

achieving strategy is thought to be dependent on both the students' need for success and their perception of the assessment task (Biggs, 1987).

In their studies, Watkins et al. (2002) tested the hypotheses that Intellectual Self-Esteem would correlate highly with the ISM self-reliance and self-esteem scales; that the mastery-oriented scales would correlate significantly and positively with the Leaning Process Questionnaire's (LPQ; Biggs, 1987) Deep and Achieving Strategy scales but negatively, if anything with the Surface Strategy scale; and that performance-oriented scales, including extrinsic motivation, would be the only ISM scales to correlate significantly positively with the Surface Strategy scale. As expected, the mastery-oriented scales correlated most highly with the Deep and Achieving Strategy scales, although performance and social-oriented scales also correlated positively with the Deep and Achieving scales but not so strongly. The mastery-oriented scales also correlated negatively and significantly with the Surface Strategy scale. Only the extrinsic motivation scale correlated positively ($p < .01$) with the Surface Strategy scale indicating that those engaging in surface strategies were more likely to say that they value extrinsic rewards for their study. All other significant correlations with Surface Strategy were negative, although it is interesting to note that, in general, performance-oriented scales were unrelated to Surface Strategies. The three sense-of-self scales (self-reliance, self-esteem, and sense of purpose) all correlated as predicted quite highly and positively with the Deep and Achieving Strategy scales. The ISM self-reliance and self-esteem scales were also negatively and significantly associated with the LPQ Surface Strategy scale. The mastery-oriented scales were most strongly positively related to Intellectual Self, although the performance- and social-oriented scales were also positively related to Intellectual Self. However, the two strongest correlations were, as expected, with self-reliance and self-esteem. Sense of purpose was also positively related to Intellectual Self.

In summary, this study demonstrated the usefulness of the ISM and the PI model on which it is based for drawing a motivational profile on Chinese speaking students in Hong Kong and for examining the relationship of this profile to learning strategies. It provided some limited support for the contention that mastery but not performance goals would be related to deep learning strategies, as mastery-oriented goals were most strongly correlated with Deep Strategies. While the mastery-oriented scales were clearly negatively related to Surface Strategies, which supports the researchers' hypothesis, there was, rather than a positive relationship, no relationship between the performance-oriented scales and Surface Strategies (except for extrinsic motivation discussed above).

The study with Chinese Hong Kong students was further extended to a range of other cultural groups including students from Malawi, Nepal, South Africa (Black and White samples), Zambia (Watkins, McInerney, Lee, Akande, & Regmi, 2002), and to students in the Philippines (Watkins et al., 2003). Initial factor analytic studies with these groups supported the validity of the ISM for use with these very diverse groups. The reliability estimates on each scale were also very similar across the groups and, in general, quite high, although there was some variability across groups with the Nepalese group recording lower reliabilities across most scales

including the LPQ scales. While initially this might suggest that either there was a language difficulty (the ISM was administered in Nepalese) or that the ISM was less valid than for the other groups, the overall evidence was that on 12 of the 17 scales utilized in the study, the reliability estimates for the Nepalese were very similar to the other groups. It is interesting to note that the scales that seemed to be least reliable for the Nepalese group were those dealing with more collectivist values such as affiliation and social concern. The reliability for Self-Reliance scale was also low for this group. The reasons for these low reliabilities need to be further investigated.

In order to examine the relationship of the ISM scales to Deep, Surface, and Achieving Learning Strategies, a series of multiple regressions were conducted with the scales of the LPQ as dependent variables and the scales of the ISM as predictor variables. Across all samples, the combination of ISM scales was able to predict Deep, Achieving, and Surface Strategies quite well, although least well for the Surface Strategy scale. Mastery-oriented scales, sense of purpose, and self-reliance were consistently strong predictors for Deep and Achieving Strategies across most samples. Indeed, most of the other scales contributed little to the variance explained. The results for the Surface Strategy were not as clear-cut with performance-oriented motivation, extrinsic motivation, self-reliance, and self-esteem providing the highest beta weights across most samples.

While the researchers had expected that students' adoption of different types of learning strategies might be triggered by different motivation impetus based not only on mastery but also on a mix of intense personal ambition, family face, peer support, and/or material reward, the findings suggested that the relationships between motivational goals and learning strategies were remarkably similar across cultural groups. Considering the diversity of the samples utilized in the study, it does seem that motivational variables relate in similar ways to the learning strategies students adopt in a range of cultures. The results of this study were consistent with previous Western research showing that mastery goals tended to be associated with deeper, better-organized learning strategies (Covington, 2000). While there was some evidence that performance-oriented goals were associated with Surface Learning, the evidence was not as strong. Given the fact that the Surface Strategy scale had a lower reliability than either the Deep or Achieving Strategies across all groups, the lack of definitive results regarding the relationship of the motivational scales to Surface Learning might reflect the inadequacy of the Surface Strategy scale as an outcome measure. Using a more reliable measure of surface learning strategies, future studies need to confirm the relationships between motivational goals and surface learning (*note, the previous paragraphs under "collaborative studies" draw on material already reported in McInerney & Liem, 2009).

In his own studies, David and colleagues considered this measurement issue in great depth and in increasingly sophisticated statistical ways through invariance testing of scales across dissimilar groups. In an article with Barbara Byrne, he concluded that their results add to the growing body of skepticism that queries whether measuring instruments can ever be totally equivalent when used in cross-cultural comparisons (Byrne & Watkins, 2003, see also Van de Vijver & Watkins, 2006a,

2006b). This latter concern is still a burning issue today within groups such as the OECD conducting international studies such as PISA, TALIS, and TIMMS. The logic goes that if at least metric equivalence across groups for latent variables cannot be demonstrated, then no statistical comparisons should be made. Some argue that even metric equivalence may be insufficient and that full scalar equivalence needs to be demonstrated before between groups comparisons are made (for a discussion of this issue read Parker, Dowson, & McInerney, 2007). I believe that this is really an important issue, because, from my point of view, why would one ever expect that there would be metric equivalence if measures are developed in one cultural context and then used in another cultural context. Perhaps all the "comparisons" of country with country in studies such as PISA present illusory results and will always represent orange and apple comparisons. From my own studies, it appears that considerable useful information that is most salient to particular cultural groups is lost if the "straight jacket" of invariance is used to constrain groups to be similar before comparisons can be made. This is a conundrum for people more versed in the abstruse world of psychometrics and measurement to solve, not me.

Watkins Post Retirement

Since his retirement from the University of Hong Kong in 2009, David has continued to be very active following up his varied research interests with his colleagues. In this section, I would like to concentrate on his most recent publications with his former PhD student and coeditor of this volume, Ronnel King, a number of papers in collaboration with myself and other colleagues. Among the papers of interest are continuing validation articles such as the validation of the GOALS-S (King & Watkins, 2011), the Sense of Self Scale (King, Ganotice & Watkins, 2012a), and the Inventory of School Motivation (King, Ganotice & Watkins, 2012b, 2012c). But the major focus has been on the importance of social goals within collectivist societies King & Watkins (2012).

As we know, achievement goal theory has been a dominant paradigm guiding research into motivation in learning settings for at least the last 20 years. However, there were two limitations to early theorizing and research that King, in collaboration with Watkins and McInerney and others, is addressing through a series of integrated studies. The first limitation was the narrow focus of achievement goals on mastery and performance goals (see, e.g., Dweck & Leggett, 1988; Elliot, 2005). It was quite clear from theoretical speculations and empirical studies that the ambit of achievement goals should be much wider. A potential range was uncovered through a number of qualitative and quantitative studies that demonstrated that students refer to a whole host of achievement goals such as social affiliation, social approval, and social concern goals, among others, when talking about their reasons for engagement in academic activities (see, e.g., Dowson & McInerney, 2003; King & McInerney, 2014).

Second, the original bifurcated achievement goals were considered orthogonal, that is, "either" "or" goals – a student is either mastery oriented or performance oriented. Research increasingly demonstrated that students hold a multiplicity of goals at the one time and that these act in concert to drive motivated behavior (Dowson & McInerney, 2003). In these investigations, it became more and more apparent that the original achievement goal template derived from Western theorizing and research was not suitable to application in non-Western settings. Earlier research by McInerney (McInerney, Hinkley, & Dowson, 1996; McInerney, Hinkley, Dowson, & Van Etten, 1998; McInerney, Roche, McInerney, & Marsh, 1997) had drawn attention to this, but it was with the publication of two articles with his colleague Martin Dowson (Dowson & McInerney, 2001, 2003) that the issue became mainstream. Nevertheless, the issue of multiple goals and their application in cross-cultural settings languished while the standard paradigm, which was increasingly seen to be inadequate even in mainstream Western settings, bifurcated and bifurcated again into first a tripartite goal system and then to a neat four component goal system, namely, mastery approach, mastery avoidance, performance approach, and performance avoidance. Glaringly absent from these various iterations of goal theory was attention to anything other than mastery and performance goals. King et al. (King & McInerney, 2011; King, McInerney, & Watkins 2010, 2013, 2012a, 2012b; 2013; Watkins & Hattie, 2012; see also, Ali, McInerney, Craven, Yeung, & King, 2014) set out to demonstrate that not only were social goals salient but perhaps the most salient of all achievement goals in specific cultural settings. It is quite apparent from a surging interest in social goals from many researchers (Ryan & Shim, 2006, 2008; Shim & Finch, 2013) that this latter research is having an important impact on the way we think about achievement goals.

Watkins's Texts

Throughout his research, David uncovered a number of misconceptions related to learning in the Asian context. An overview of David Watkins's research would, therefore, be incomplete without reference to the books he edited on the basis of his cross-cultural research and which address a number of the misconceptions. These edited books, *Hong Kong Classrooms*; *Core Studies in Psychology* (with John Biggs); *The Chinese Learner: Cultural, Psychological, and Contextual Influences* (edited with John Biggs); *Teaching the Chinese Learner: Psychological and Pedagogical Perspectives* (edited with John Biggs); and *Understanding the Learning and Development of Asian Students* (edited with L. F. Zhang and J. B. Biggs), have had a lasting effect on our understanding of the Asian learner and education in Hong Kong and other Asian culture countries.

Some Statistics!

David has an impressive number of citations to his work. His Google scholar H-Index is (currently as of April 2015) 48, and he has had 3800 citations to his work since 2009. His total citation is almost 9,400. Among the most cited of his works are his textbooks on the Chinese Learner, which clearly have had an impact in Hong Kong and beyond amassing more than 1200 citations between them. Among other highly cited areas of study are his interest in improving teaching and learning; Asian perspectives on learning; self-processes such as self-concept, self-esteem, and locus of control in diverse cultural contexts; and evaluating tertiary teaching and learning. In these and many other areas, David's work has clearly had an impact reflected by citations that all of us would be envious of.

There are many anecdotes I could tell about David. His doctoral students immensely admire him, and many of these have gone on to develop his ideas and research. He is always an amiable fellow to have a drink and meal with, except if it is in the freezing cold and ice and snow of a Seoul winter where my navigation skills were lacking as I tried to lead him back, without him slipping and breaking his hip, to our accommodation after a pleasant meal! And provided, I didn't say "white" so he could retort "black." In this latter context, David has always challenged my understanding of methodological and measurement issues, and I have learned enormously from him. His network of friends, former students, and colleagues is enviable.

David has published in a very large number of journals, including significant articles in tier 1 journals. Among his major contributions is a vast array of validation studies examining the psychometric properties of a wide range of psychological instruments in cross-cultural contexts, a focus on and analysis of what works and what doesn't work in theorizing and research in cross-cultural settings and why, and sensitizing teachers of students in Asian and other cultural settings that a one size fits all approach to understanding motivation and learning does not work. Each of these themes is well represented in his top ten publications listed by SCOPUS. In order of citations, the titles of these articles give a good map of where David has traversed the research terrain:

The issue of measurement invariance revisited (133 citations, *Journal of Cross-Cultural Psychology*, with Byrne)

Discontinuities and continuities in the experience of learning: An interview study of high-school students in Hong Kong (107 citations, *Learning and Instruction*, with Marton and Tang)

The conceptual change approach to improving teaching and learning: An evaluation of a Hong Kong staff development programme (79 citations, *Higher Education*, with Ho and Kelly)

Learning and teaching: A cross-cultural perspective (69 citations, *School Leadership and Management*)

The role of repetition in the processes of memorising and understanding: A comparison of the views of German and Chinese secondary school students in Hong Kong (59 citations, *British Journal of Educational Psychology*, with Dahlin)

Cultural dimensions, gender, and the nature of self-concept: A 14-country study (46 citations, *International Journal of Psychology*, with Akande et al.)

Depth of processing and the quality of learning outcomes (42 citations, *Instructional Science*)

Classroom environment and approaches to learning: An investigation of the actual and preferred perceptions of Hong Kong secondary school students (40 citations, *Instructional Science,* with Yuen-Yee)

The 20 statements test: Some measurement issues (35 citations, *Journal of Cross-Cultural Psychology*, with Yau, Dahlin & Wondimu)

Conceptions of teaching held by school science teachers in P.R. China: Identification and cross-cultural comparisons (31 citations, *International Journal of Science Education*, with Gao).

What Does David Say?

I asked David to contribute a section entitled Theory and Research into Practice to my text *Educational Psychology: Constructing learning* (6th Ed. 2014, pp. 294–296). In this, he cites an article by Markus and Kitayama (1991) dealing with independent and interdependent self-construal as very influential in his developing an interest in cross-cultural psychology. Markus and Kitayama's contention was that independent self-construal (usually associated with individualist societies) and interdependent self-construal (usually identified with collectivist societies) influenced cultural reactions to a variety of self-processes such as perception, cognition, and personality. However, David considered that the research base for this contention was lacking. David's first large-scale foray into cross-cultural studies was a 20-country study on self-concept examining the Markus and Kitayama hypotheses. He found little to support their contention, and as he recounted to me on numerous occasions (and I can relate to this point very well), it was inordinately difficult to publish findings that challenged the status quo and well-loved research shibboleths. Nevertheless, this large-scale study laid a foundation for his future cross-cultural studies. David's piece in *Educational Psychology: Constructing learning* also highlights the paradox of the Asian learner and the variation in approaches to and conceptions of learning that characterize students from diverse cultural backgrounds. While now retired, David's legacy works on through the exciting research of his former students and colleagues.

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Part II
Beliefs About Learning and Schooling

Chapter 3
The Indispensable Role of Culture in Shaping Children's Learning Beliefs

Jin Li

Abstract David Watkins' pioneering work on Chinese learners has had a profound influence on my own thinking and research. The articulation of the paradoxical Chinese learner by him and John Biggs ushered in a significant new research direction that enabled me to explore fundamental differences in learning between the East and West. Inspired by their thinking, I began my research by collecting the learning lexicons in Chinese and English that are used in daily life and written images of ideal learners in both cultures, resulting in two distinct cultural learning models. Accordingly, the Chinese model is more virtue oriented whereas the European American model more mind oriented. Subsequently, I studied preschool children's learning beliefs by asking them to complete stories that depicted routine learning scenarios. As expected, children's learning beliefs resemble their respective cultures' learning models. To understand the process by which children construct their learning beliefs, Heidi Fung and I recorded European American and Taiwanese mother–child conversations about learning. The results confirmed that these mothers socialize their children according to their respective cultural learning models. Finally, I describe my current comparative research focusing on European American children and children of Chinese immigrants. This research sheds light on the persisting strength of the Chinese learning model but also reveals challenges that may take a toll on Chinese children's intellectual development. A new line of research is suggested to account for the possibly stunted development of culturally based learning beliefs among Chinese immigrant children. Implications for research, childrearing, and education are discussed.

Keywords Cultural learning models • Children's learning beliefs • Stunted intellectual growth • Chinese immigrant children

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In 1996, Professor Kai-ming Cheng from University of Hong Kong, also a visiting professor at Harvard Graduate School of Education, recommended to me the newly published volume *The Chinese Learner* by David Watkins and John Biggs (1996). Professor Cheng did so because he knew that I had collected data from Chinese college students on their conceptions of learning. I had seen certain patterns that seemed to differ largely from Western concepts. Reading that book marked the decisive turn of my intellectual journey: I decided then and there that I would join the expedition on the largely uncharted land to satisfy my own intellectual quest.

Sociocultural Context

Since nearly two centuries ago, Confucian heritage cultures (CHC) have undergone much change. As part of their political, social, and economic reform, education has witnessed a concerted effort to westernize their systems, curricula, and pedagogies. The impetus for this massive undertaking was that CHC's traditional learning was regarded as outdated because it stressed rote learning for exams, teacher centeredness, and passivity of children. This stood in sharp contrast to Western learning that triumphed in critical thinking, autonomy, creativity, and self-expression. Such criticisms were levied at CHC's education not just from outside but more importantly from leaders and intellectuals within CHC. This general condemnation of CHC's learning is still prevalent, and the Westernization persists to date.

However, from the 1980s through the present time, students from CHC have been performing in international assessment of educational attainment (e.g., Gonzales, William, Jocylin, Roey, Kastberg, & Brewalt, 2008; Medrich & Griffith, 1992; OECD, 2003, 2009) on the very top. In fact, no matter how they were tested, either internationally at the country level or at the school level within Western countries where CHC immigrant students lived, they still performed on the top (College Board, 2013; Ran, 2001; The Economist, 2008). How could the pathetically doomed CHC learning tradition produce any meaningful learning, let alone the higher achievement?

Against the surging criticisms of CHC's learning traditions but also puzzled by the strangely high achievement of their students, David Watkins and John Biggs assembled a group of researchers in Hong Kong and published the aforementioned volume. They posed a new research question on what they called the "paradoxical Chinese learner." By casting this new research question as a paradox, they ushered in what I regard as a very rich and significant research program. The topics were wide ranging and research findings rewarding (Dahlin & Watkins, 2000; Kember & Watkins, 2010; Watkins, 2000; Watkins & Biggs, 2001). As a result, we now have achieved a much better understanding of how Chinese and other East Asian children learn, how their parents guide them, how their teachers teach, and above all why they exhibit these particular but lasting patterns. In my view, it is not exaggerating to call what David Watkins and his colleagues did a breakthrough in cultural educational psychology. Here I want to pause to express my deep and overdue gratitude to David Watkins for charting this new line of research.

To illustrate the influence David Watkins' thinking had on me, I share, as I have elsewhere, in this chapter my own research as a small part of the edifice that he and his colleagues have erected. Specifically, I describe four sets of studies, with each preceding study driving the succeeding one. This research has first led me to advance a new theory on the Western and East Asian learning models. But my current research on Chinese immigrant children's adaptation to American learning has resulted in my deepening recognition of the indispensable role culture plays in the architectural layout of young minds and hearts. There is emerging evidence to suggest that despite the plasticity of the human brain, premature exposure of children to multiple but vastly different cultural norms may result in their stunted intellectual development. This new and surprising empirical discovery awaits serious research confirmation to illuminate childrearing, learning, migration, and education in cultural contexts in the twenty-first century.

My Basic Research Interest

The Chinese Learner solidified my initial interest in what learning means to Chinese and Western people. If we assume that human behavior is not random but guided by their beliefs, then their beliefs ought to reveal their cultural orientations. If we find different learning beliefs and if they cohere more within than between cultures, then there may be a binding force that makes individuals' beliefs resemble each other within a given culture. These shared beliefs thus form a cultural model that guides people's further thinking and behavior. As it turns out, this kind of approach to human behavior is the core of anthropological research (D'Andrade, 1995). If different cultural learning models exist, then it is sensible to explore how they shape their members' beliefs, learning process, and outcomes. This basic conceptual understanding helped launch my first set of studies.

Learning Lexicon and Ideal Learner Image

Cognitive scientists (e.g., Rosch, 1978) argue that one way human beings make sense of the world is to construct a conceptual map about each domain. A domain is a realm to be cognized by humans, for example, physical objects (e.g., natural kinds such as rocks and rivers), biological forms (e.g., plants and animals), and social entities (e.g., interpersonal relationships). Much of our knowledge consists of these maps. To construct them, human beings also abstract what Catherine Nelson (2009) terms "scripts," resulting from our repeated experiences with a particular activity. Such scripts as a form of knowledge include the temporality and sequence of events, social settings, players and roles, functions, and interactions of participants in the context. Similarly, anthropologists speak of cultural models or ethnotheories about a particular domain (D'Andrade, 1995; Harkness & Super, 1996). These forms of knowledge inform, explain, predict, and interpret, and guide people's thinking and behavior.

As I have argued repeatedly, human learning in specific cultures can be viewed as cultural models that function as conceptual maps, scripts, or ethnotheories. Such cultural models should be accessible for research. There are surely multiple ways to collect such data. I chose to collect the lexicon that encodes learning conceptions within a culture as my first empirical effort. To the extent that language terms are the building blocks for the learning domain (Rosch, 1973), the lexicon is a reasonable representation of the domain. Accordingly, three college-educated European Americans and their Chinese counterparts first heard *learn/learning* versus 学/学习 *(xue/xuexi)*, respectively, and were asked to write down their associated words and phrases independently. These terms had been determined to be the most equivalent of the languages through a number of cross-reference procedures (Li, 2002, 2003). This first step generated 242 English and 145 Chinese terms. Next, 20 college students in each culture inspected the list and expanded it, yielding 496 English and 478 Chinese terms. Subsequently, 60 college students in each culture rated each item according to its relevance to learning, resulting in the two cultures' core lists of 203 and 225 for English and Chinese, respectively. Finally, 100 college students from each culture sorted their lists into groups based on similarity of meaning. These sortings were submitted to cluster analysis, which produced two treelike outputs of linkages of the terms.

These two outputs were regarded as the two cultures' conceptual maps, therefore learning models. As I detailed elsewhere, despite rich ideas and a similar overall structure on each map, the actual meanings of the two learning models hardly overlap, with a distinct set of key concepts for each, indicating different cultural emphases.

In general, the European American (EA) map has most terms clustered on two sets of concepts: (1) the learning process and (2) individuals' characteristics. The first set contains items detailing active learning, different kinds of mental processes, inquiry, and communication. The second set stresses the learner's cognitive skills, motivation, open-mindedness, and creativity and different facets of intelligence.

The Chinese map shows three basic sets of concepts: (1) a heart and mind for learning, (2) purpose of learning, and (3) achievement standards. Within the first, the heavy weight falls on the learning virtues of self-exertion, lifelong dedication, diligence, endurance of hardship, steadfast perseverance, concentration, and humility. The second set reveals three purposes of learning: learning for its own sake, practical reward, and contribution to society. The third set displays four related notions of achieving breadth and depth of knowledge, extraordinary abilities (e.g., writing talent), the unity of knowledge and moral character, and originality.

To substantiate the results of the lexicon study, I drew on the anthropological and psychological theory that cultures have optimal ways of being, which serve as the endpoints of child development. Parents hold these ideas that inform their childrearing practice. Thus, 62 different college students in each culture were asked to describe in writing an ideal learner they held as a model for themselves. These students responded to questions probing the nature of knowledge and learning purposes, moral relevance, learning process, and affective responses to good versus poor learning. Data were analyzed qualitatively first and then quantitatively. The analyses yielded profiles of the two cultures' learning models (Li, 2002).

The results from both the lexicon and the ideal learner study helped me sketch a fuller map of each culture's learning model. The EA model emphasizes cultivating the mind in order to understand the world, developing personal ability and skills, and pursuing personal goals as learning purposes. For the learning process, learners ideally seek active involvement (e.g., hands-on activities), think well (e.g., deductively and imaginatively), inquire into the world, and then communicate their learning. The standards of good learning include understanding the essentials of a given field, achieving personal insights/expertise/creativity, and being the best one can be. Regarding affective experiences with good learning, learners express curiosity/interest, enjoy the activities intrinsically, and challenge existing knowledge and even authorities. When learning well, learners take pride of their achievement. However, when not learning well, learners tend to feel boredom, frustration, extrinsic motivation, and low self-esteem. Because the EA model elaborates on the mind and related processes, I have referred this model as "mind oriented." Reflecting the long-standing Western intellectual tradition, this model has been confirmed by recent research (van Egmond, 2011) in other European cultures.

The Chinese model emphasizes the fundamental goal of moral and social self-perfection as outlined by the Confucian learning tradition. This model also stresses mastery of learning and acquisition of skills for oneself, but also contribution to society. For the learning process, a set of learning virtues of earnestness, self-exertion, diligence, endurance of hardship, perseverance, and concentration are essential to foster in children. Such learning aims at achieving the standards of breadth and depth of knowledge, its application to real-life practice, and the unity of knowledge and moral character. This model strongly promotes affects such as commitment, passion for learning, and respect for teaching authorities. When achieving well, learners are expected to watch out for arrogance, to display humility, and to continue their striving. In poor learning, learners tend to feel sadness but also shame/guilt. Because the overall stress is on learning virtues, I have referred the Chinese model as "virtue oriented." There is ample evidence that this model also pertains to other CHC of Hong Kong, Taiwan, Singapore, Korea, Japan, and Vietnam.

Children's Learning Beliefs

Having mapped out these cultural models, I explored how children develop their learning beliefs under the influence of these models. Individual children's views are conceptualized as learning beliefs rather than models because cultural models serve as a source of influence from which individuals appropriate and internalize. A cultural model in my research is regarded as a culture-level resource to which all members have access (albeit to varying degrees due to social and family circumstances) and from which all members draw to suit their needs. But learning beliefs are individual-level development under the influence of the cultural repertoire.

My team collected data from preschool children (Li, 2004a, 2004b; Li & Wang, 2004). Preschool is the critical period where children actively construct their beliefs

about the world and themselves. This period is ideal for studying how children make sense of learning. We presented a set of story beginnings to children of 4–6. One set of stories depicted a child who is eager to go to school, while another is not but wants to play at home instead. Another set of stories described a bird who tries hard to fly and succeeds in the end and a bear who tries to catch fish but gives up after failure. Yet another story showed a child who is practicing words at home but distracted by neighborhood children playing outside. The final story evoked responses to a high-achieving peer in a classroom. Upon hearing each story beginning and seeing a corresponding picture, children were asked to complete the stories. We probed further any responses that pertained to learning-related ideas and feelings.

Analysis of these story completions showed that both cultures' children expressed rich and sophisticated ideas about learning. They also valued learning similarly. However, EA children talked more about mental activities, intellectual benefits, ability, creative strategies, and positive affect for self. Although recognizing that high achievement makes the protagonist, the teacher, and parents happy, EA children also displayed greater awareness of peers' negative affect and rejection toward the high achiever. In contrast, Chinese children mentioned more learning virtues, seriousness of learning, social benefits to self and to others, respect for and their desire to emulate the high achiever, and compliance with parental expectations. Although expressing less negativity toward the high achiever, children voiced more concern with arrogance concerning the high achiever. These patterns became more consistent among older children. Clearly, children's own learning beliefs reflect their cultural learning models.

Parental Socialization

If children's learning beliefs resemble their culture's learning model, an important question to ask is how the cultural model enters their minds and becomes their own. This classic question about child development is what underlies much of anthropological research. Recent research on children's acquisition of knowledge shows that much of what they know is not a result of direct observation and independent judgment but what they are told by their parents and other people. The latter source of knowledge is termed *testimony* (Harris, 2012). Unlike factual knowledge, beliefs are even more strongly shaped by the culture's values, norms, and preferences. Since parents are the primary transmitters of cultural values and norms, their socialization role in the development of their children's learning beliefs is of central importance (Li, 2012).

To explore this topic, my collaborator Heidi Fung and I (Li, Fung, Bakeman, Rae, & Wei, 2014) used simulated mother–child conversations (MCCs) to record how mothers talked to their children about learning in real time. We asked 218 mothers of children aged 6–10, EA (102) and Taiwanese (116), to read two cards in random order. One was about a real incident showing the child's good learning

attitude and behavior (good learning hereafter) and the other identical except that the attitude and behavior were not perfect (poor learning hereafter). The mother had unlimited time and unconstrained direction to converse with her child. All recordings were transcribed verbatim and submitted to three kinds of analysis: structural, sequential, and discourse.

Structural analysis examines the basic communicative elements in the MCCs. Despite many elements to study, we (Li et al., 2014) tallied four most relevant elements: (1) academic (e.g., math and reading) and near academic (e.g., music and sports) topics versus nonacademic but still learning relevant topics (e.g., a girl refuses to learn from a male teacher), (2) turns of each MCC partner, (3) the amount of talk in each MCC, and (4) duration of each. We found no statistical differences for children's gender, good versus poor learning, or interactions. Nor did we find any cultural differences in the types of topics, the duration of MCCs, and amount of maternal talk between the two cultural groups. However, Taiwanese dyads took more turns than EA dyads. Interestingly, Taiwanese children also talked less per turn than EA children. Taiwanese children more often responded with short acknowledgment or disagreements such as "yes," "not so," and "mhm." Since the two groups' total durations did not differ, the Taiwanese children's shorter response necessarily meant more frequent turns, which was what we found. Despite these particular differences, we concluded that the two cultural groups' parental socialization processes are unlikely to be due to the structural elements, gender of children, or the interactions of these factors inherent in their communication.

Next, we conducted sequential analysis of turns. The purpose was to track how mothers and children moved with various themes and how they followed each other. Initially, we developed four conceptual themes: mental/learning activities (mental activities hereafter), positive affect, negative affect, and learning virtues. First, the distributions of maternal and child turns by culture, gender, and learning types (good vs. poor learning) showed both differences by learning type and culture, but not by gender. Regarding good learning, mothers discussed mental activities most, followed by positive affect and learning virtue with negative affect least. For poor learning, mothers still talked most about mental activities, however, learning virtues second most, followed by positive and negative affect equally. Children's patterns cohered with those of their mothers. These findings indicate the commonality that the two cultures' mothers focus on mental and learning activities in their socialization regardless of how well their children learn. But for good learning, mothers steer their children to positive feelings, and avoid the negative feelings, which is sensible. However, for poor learning, maternal attention turns to learning virtues for addressing their children's inadequate learning. We also found large cultural differences. EA mothers talked much more about mental activities and positive affect, while Taiwanese mothers did so more about learning virtues and negative affect. Children's patterns resembled again their maternal trends.

Our further sequential analysis of how mothers and children followed each other's themes (conducted with log-linear analysis) indicated that EA mothers matched their children's mental activities more. When children did not mention learning virtues, Taiwanese mothers brought up learning virtues almost twice as often as EA mothers.

Similarly, when children did not mention learning virtues, EA mothers brought up mental activities more. Finally, Taiwanese mothers followed their children's mental activities with negative affect more. These findings support our anticipation that parents' socialization draws on their cultures' respective learning models.

Discourse analysis (DA) is a common analytical approach to what people do with language to achieve their goals (Willig, 2008). DA's advantage is to examine moment-to-moment human communication. We adopted Vygotskian theory on the process of scaffolding of child development by their cultures' more mature members (Rogoff, 1990). Instead of conducting an independently open DA, we explored the patterns found in our previous research. Reading and rereading of MCC transcripts enabled us to identify two types of socialization: (1) cognitive and (2) affective. Within cognitive socialization, we indeed traced EA mothers' elaboration on mental talk and Taiwanese mothers' focus on virtue talk. Within affective socialization, we also uncovered similar EA affects (e.g., interest and pride) and Taiwanese virtue-based affects (e.g., devotion), respectively (Li, 2012; Li & Fung, 2014).

These findings compelled us to conclude that children in these two types of cultures develop their own learning beliefs under parental socialization effort. Such effort is guided by their respective cultural learning models.

Longitudinal Study on Chinese Immigrant Children: A Looming New Developmental Paradox

Due to the fast cultural exchange brought about by globalization, more than ever, understanding of cultures is needed. Failure of educational attainment among many ethnic children in the West is a common and persistent problem. It is the case that not all cultural groups experience the same degree of failure (e.g., Asian immigrant students tend to achieve better in the West). However, as new research emerges, we learn that children of immigrants, particularly those from vastly different cultures, face challenges that are not well understood by researchers, let alone the general public.

East Asian immigrants are a telling case in point. They have been seeking Western education for more than 150 years. Generations after generations have joined what I call the "educational exodus from East to West." These education seekers were initially told by their governments as well as self-critical intellectuals that their own educational traditions were outdated and unfit to the modern world and that the salvation was to get the better education from the West. The "better" part of Western education has generally been regarded as what East Asian cultures lack: creativity, independent/critical thinking, and self-expression (Yue, 2009). More than a century later, not only does the exodus show no sign of abating, but it has also intensified, owing to East Asian recent economic growth. Currently, millions more East Asian students, particularly Mainland Chinese, go West for higher education (Institution of International Education (IIE), 2014). Even more disturbing is the fact that the age of such education seekers is becoming younger and younger (Zhou, 2009).

Yet, there is very little research to verify if this widely accepted premise holds true. We have reasons to believe that the first adult generation education seekers may have benefitted from their courageous endeavors because many successful examples can be cited (e.g., the Nobel Laureates in science). However, now that East Asian families have lived in the West for some time, we must ask a very basic question: Are their children more creative, more critical thinkers, and more self-expressive than their counterparts who have never left East Asia? Unfortunately, the answer to this question based on emerging evidence is likely no. Thus, there may be a hitherto unseen shadow on this long and massive human education exodus. If so, then what is the nature of this shadow? How specifically does it hinder the intellectual growth of East Asian immigrant children? What new light does such an inquiry shed on human children's need to be enculturated by their parents' home culture first without disturbance? Finally, is there a developmental risk to exposing young children to two or more very different cultures' socializations simultaneously but prematurely?

These questions are stimulated by a significant research area in human development that has assumed prominence recently on how non-European heritage immigrant children fare in the West. The most important discovery is that the first generation immigrants achieve relatively well. One would assume that their progeny would do the same if not better, given the West-born children's acculturative advantage over their culturally, linguistically, and educationally disadvantaged parents. But the data do not support this assumption. Instead, they show a downward trend, worsening development in each succeeding generation. Scholars term this general and strange phenomenon "the immigrant paradox" (Garcia Coll & Marks, 2011; Suárez-Orozco, Suárez-Orozco, & Todorova, 2008).

Initially, this startling discovery did not catch the attention of East Asian scholars because the group studied were not East Asian children (Suárez-Orozco & Suárez-Orozco, 1995). On surface, East Asians may have good reasons to reject the idea that their children might experience stunted intellectual growth and psychological difficulties. Indeed, these children often display impressive achievement, ranging from the lowest school dropout rate to highest scores on achievement tests in the West (Portes, 1999). However, more recent data on East Asians show an undeniable tendency toward the same downward patterns. For example, as Chinese families live longer in the USA, they experience more problems such as children's social and emotional distancing from parents, lack of communication, parent–child conflict, and internalized psychological problems (Qin, 2006; Wu & Chao, 2011).

Against this backdrop, I began a large longitudinal research project. My team collected a 3-wave dataset from Chinese immigrant parents (first generation) with their US-born children (CHIs are used hereafter to refer to children of Chinese immigrants), one middle-class and one low-income group, in comparison with their non-immigrant EA counterparts (300 families, 100 for each), starting with children at 4. The data include children's achievement scores, their English proficiency, open-ended story completions, mother–child conversations about learning, mother surveys and diaries, and teacher ratings of children.

As anticipated, our preliminary data analysis revealed findings (Li, Yamamoto, Luo, Batchelor, & Bresnahan, 2010) that mirror the paradoxical trend observed in other non-European heritage groups. Two sets of data are particularly relevant. First, we used the Woodcock–Johnson Achievement Test to measure three domains: oral expression, reading, and math. Results showed that while EA children's oral expression at age 4 was considerably above the national mean, CHIs showed below the national mean, even after controlling for their English proficiency. While middle-class CHIs caught up with their EA peers somewhat by 6, the gap was still significantly wide. Low-income CHIs were so much behind the EA group that their oral expression score was only 75.74, equal to −1.62 *SD* lower than the national mean (100). Yet, their math and reading grew steeply with low-income CHIs still behind but middle-class CHIs surpassing their EA peers by a large margin. Juxtaposing CHIs' reading and math with their thwarted oral expression, a clear picture emerges: They are developing intellectually well but only silently. Thus, we are compelled to draw the conclusion that CHIs are not developing into well-rounded individuals as the deep belief driving their parents' educational exodus would predict.

This counterintuitive finding prompted us to explore CHIs' stunted oral expression with children's story completions further. We compared only the EA and CHI middle-class groups. In order to eliminate confounding factors, we examined also only those children who achieved native English fluency at age 4 (regarded as linguistically talented). We used a global linguistic index called subject–verb–structure (SVS) that is a reliable and widely used measure of children's language development. Because our story completion interview was open-ended, children were encouraged to express themselves freely. Therefore, this method yielded data on children's oral expressivity. All of their stories were transcribed verbatim, and coders for SVS achieved reliability of .90. We counted the total expressed SVS for each child each year over four story completions.

Preliminary analysis showed that the two cultural groups of children were similar in oral expression at age 4 but diverged dramatically afterwards. Specifically, while EA children, particularly girls, increased linearly and dramatically, their CHI counterparts decreased sharply, displaying the opposite developmental trajectory. Further analysis[1] indicated only one comparable increase of the very basic linguistic index called "mean utterance length" that tracks all utterances (smallest units of speech, bounded on either end by a pause) and calculates their mean in the child's language production. But all of CHIs' other key components of oral expression examined showed a decline. These included tokens (total number of words), types (different kinds of words), number of utterances, rare words (beyond the most common words for their age), dependent clauses (a measure of complexity), and quotes (a measure of language sophistication). By contrast, all of these components of EA children increased steadily.

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[1] I thank Brenda McFarlane, Diwen Shi, Joshua Willis, and Zoe Yang for their analysis of these indices on the data.

Thus, it is not an isolated, esoteric part of oral expression that the CHIs were not developing but their global oral expression as well as other key components that were stunted countering predictions of general developmental theory. We are inclined to conclude that the linguistically talented and eager talking 4-year-old CHIs were no longer expressive by 6. It is important to note that over the same period, their English proficiency reached the ceiling of native fluency. Apparently, their thwarted expressivity cannot be explained by their lack of English proficiency, but something else.

These preliminary findings are puzzling; they certainly counter the long-held belief that East Asian children are better off living and learning in the West. Two issues sharpen the new paradox even more. First, CHIs live in a culture that heavily emphasizes verbal self-expression. Yet, their poor oral expression does not cohere with this very core cultural value of the West. It appears, quite strangely, that living and being educated in the expressive West take a toll on CHIs' verbal expression. Since self-expression is a critical stamp of children's critical, independent thinking and creativity, these developments are also likely compromised. Skeptics might cite the well-documented verbal reticence in East Asian cultures as the cause of the observed trend of CHIs. Admitted, this is a legitimate counterargument. To entertain this possibility, we compared the SVS from a cross-sectional sample of 4-, 5-, and 6-year-old children who also completed the same four stories but never lived outside China. Our analysis showed even more surprising but confirming results. The latter group's oral expression actually increased, not decreased, in each older age group, resembling the growth trajectory (if not the magnitude) of their EA peers! Hence, if children in China, where oral expression is indeed devalued (Li, 2012), become more self-expressive, then something in CHIs' intellectual development has gone awry. Second, there seems to be a split mind among CHIs that knows some things well (reading and math), yet is unable to share and express thoughts and feelings with others. Independent research on older CHIs has generally confirmed that they became more and more silent in the West. Therefore, their so-called better Asian American achievement is demonstrated with paper and pencil, but not otherwise.

Conclusion and Implications

Encouraged by David Watkins (and John Biggs), I continued my own research on the role of culture in shaping children's learning beliefs. My initial empirical effort resulted in mapping out Chinese and European American cultural learning models. Recent research testing these two basic models in other Western cultures has confirmed the Western model, and the basic Chinese model coheres with the documented attributes of other East Asian cultural learning models. Thus, the conceptual distinction of Western mind orientation and East Asian virtue orientation seems to hold. Children begin developing their learning beliefs early on, and their beliefs resemble their own, but not other, cultural learning models. However, children do not achieve this development alone but under parental effortful socialization.

Parents/caregivers transmit through daily interactions their cultures' learning models to the young implicitly and explicitly but also highly successfully. When internalizing these models, they become children's own beliefs that shape their learning behavior and influence their learning outcomes. When they become parents in later life, they continue the same socialization process with their own children. In this way, cultural learning models tend to be renewed generation after generation. The core of each cultural learning model tends to be stable despite incremental cultural changes and individuals' idiosyncrasies that may be part of people's learning beliefs.

What happens then when children no longer have the full exposure to their cultural learning model that is due to them? What happens when they are exposed to another very different cultural model while continuing to struggle with their native model? What if the two learning models clash, yet children are unable to process conflicting values and practices? For a long time, we have been led to believe that exposing Confucian heritage children only to their native cultural learning model is a limitation and liability that puts them at a developmental disadvantage. Internal education reform to incorporate Western learning and going West to shorten this slow Westernizing process have been massive over nearly two centuries. Not only have East Asian societies allocated heavy investment to this process, but families have also emptied their life savings for this presumed educational benefit for their children. Some East Asian parents even believe that their preschool children should be sent to the West so that they can become creative, independent, and self-expressive like Western children (counting of hands up at my presentation to a group of parents in China, 2012). Of course, those who have succeeded in immigrating to the West breathe a sigh of relief about their good luck that these luxuries are within the reach for their children (the vast majority of parents in our sample indicated that seeking better education for their children was one of the key reasons for their immigration to the USA).

Now we have reason to seriously question this long-held belief. Here I discuss three initial but related ideas for a possible new line of research. First, the well-established research on human infant attachment to their caregivers informs us that the relationship between the caregiver and her child is of utmost importance for the child's psychological health. With this relationship in place, human children acquire the basic developmental milestones of language, cognition, and socioemotional competence. However, this elemental development between the caregiver and her child takes place not in a vacuum but in their specific cultural context. The particular care of the caregiver is based on what she knows deeply (often intuitively and implicitly) from her culture, learned from the previous generation in her own upbringing. If very young children who are still in the process of forming the bond with their caregiver but have not yet acquired the basics of development are forced to learn a different culture's language, cognition, and socioemotional knowledge, is these children's normal course of development not interrupted and compromised? What is the nature of such compromise? What light does such compromise shed on the indispensable role culture plays in the architectural layout of young minds and hearts? As far as I know, there is very little research on this premature and interruptive exposure to multiple cultures and the associated consequences.

Second, what is the scientific foundation underlying parents' and educators' confidence that young children have the capacity to process two or more sets of linguistic and cultural information day in and day out? Research shows that children display language delay when they are acquiring two languages at the same time. This alone ought to give us pauses about the integrity of young children's linguistic and cognitive capacity. If adding even one language causes children's linguistic development to delay, then adding another language plus simultaneously adding another culture's norm must delay them further. Moreover, is it just a temporal delay (implying that children can catch up later), or does this delay involve other, more severe, deformation of other developmental domains such as their socioemotional competence?

Third, what happens when children's daily development meets cultural discord? In other words, what happens when the child learns some things outside that contradict her most trusted caregiver's teaching all along? What happens, for example, to a preschool child of a Japanese immigrant mother in the USA that his rice ball is not welcome by his preschool teacher because it is messy? The mother has all along expressed love in making rice balls every day for her boy. But the boy returns home telling his mother that he does not want to eat rice balls anymore but instead only sandwiches as suggested by the teacher. This was a true incident and on surface may be quite trivial. But upon inspection, it is not trivial at all. What I suspect took place in the boy's experience is a shadow cast on his mother's way of expressing love with handmade rice balls. The boy was made to feel that something is wrong with his mother's food, and he ought to reject it. Needless to say that the boy continued to be confused while the mother was feeling sad and helpless. We know from social psychology that cognitive dissonance is a serious challenge for adults without multilingual and multicultural complications. Then how are young children to face constant cognitive, social, and emotional dissonance? As this very common and simple example illustrates, exposing young children to a different language and different cultural norm may render their acquisition of both their native culture and the host culture half-baked. There is virtually no research on the formation and functions of this kind of vulnerabilities that are generated by well-meaning immigrant families and their host cultures.

It is quite likely that the East Asian education seekers have been following a false assumption and have unfortunately jeopardized their children's well-being. If so, then more harm has been done than help. Maybe the real liability is to rob children off the full exposure to their native culture; perhaps their mother tongue and native cultural norm are meant for them to acquire before learning another language and another cultural norm. The true luxury in this bewildering globalized world is not abroad but right here at home in the mother's lap.

David Watkins's path-finding work on the paradoxical Chinese learner has borne fruit in achieving cultural understanding and in inspiring a generation of researchers to plow greater terrains and deeper grounds. Perhaps we are due to follow his example by exploring the new paradox of East Asians seeking education in the West. We hope that this new effort can enable us to crack the paradox for children and gain better understanding of what it takes to bring them up healthy and to educate them further for their true benefit.

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Chapter 4
Understanding Students' Beliefs About Knowledge and Learning in a Sociocultural Context: The Case of Korean Middle School Students

Jungsoon Choi

Abstract This study attempts to construe underlying influences of culture and other features on the dimensions of students' beliefs by investigating three components: the Korean curriculum, epistemological beliefs, and confidence in independent learning. The survey participants were Korean middle school students. For this study, the Epistemological Beliefs Scale developed by Chan and Elliott (Contemp Educ Psychol 27:392–414, 2002) was adopted. Statistical methodologies including factor analysis, Pearson correlation analysis, ANOVA, and t-tests were used. The research result replicates four dimensions of epistemological beliefs (i.e., Learning effort/process, Authority/expert knowledge, Innate/fixed ability, and Certainty of knowledge) that Chan and Elliott (Contemp Educ Psychol 27:392–414, 2002) identified. One main finding of this study is that Korean middle school students in general tended to value "Learning effort/process" but did not rely on "Authority/expert knowledge." This feature might reflect changes in Korean tradition and educational values. This study also finds some differences by grade and gender in epistemological beliefs and confidence in independent learning. Female students were more likely to believe in "Authority/expert knowledge." Upper-grade students were more likely than lower-grade students to believe in "Learning effort/process" and "Innate/fixed ability." Research implications are discussed in the social and cultural context of Korea based on the fact that students are likely to form their beliefs about knowledge and learning in formal ways (e.g., teacher, subject, curriculum, and school rules) as well as informal ways (e.g., parents, discipline, culture, and social norms).

Keywords Confucian culture • Korean education culture • South Korean education • Global society • Educational movements

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Introduction

One maxim of modern society is that people should prepare for the digital age by cultivating creativity, critical thinking, independent decision-making, and problem-solving skills (Saavedra, & Opfer, 2012); these traits have rarely been required in traditional education in South Korea (hereafter Korea). As society has changed, South Korea (hereafter Korea) has made great efforts to renovate traditional, teacher-centered instruction and students' passive, mechanical, and rote learning in order to keep pace with a rapidly changing society. For instance, in late 1990, Korean educators attempted to reform traditional Korean tests, which used multiple-choice and short-answer questions. These were replaced by a performance test having multiple formats, such as projects, research, and portfolios. The new test was conducted nationally to promote students' independent learning and encourage their participation in learning.

As a matter of fact, reforming educational policies and curriculum takes time; however, people's habits and psychological adjustment to those changes may require more time and effort, given that learning serves as a process of socialization and enculturation (Spindler, 1987). In particular, cultural traditions remain deeply rooted in people's lives (Cheng, 1998) and substantially affect their attitudes, goals, and motivation to learn (Trumbull & Rotstein-Fisch, 2011). In this vein, recent studies have paid considerable attention to cultural factors in learning (e.g., Choi & Kwon, 2012; King, & Watkins, 2013; Martin & Hau, 2010; Stankov, 2010; Watkins, 2000). For example, Martin and Hau (2010) revealed that Chinese students have less motivation to achieve than Australian students. The researchers stated that certain features of Chinese culture, such as placing higher value on achievement, feeling guilty for failing, and always praising hard work may decrease Chinese students' expectations for learning achievement. Likewise, according to Stankov (2010) and Leung (2006), underlying cultural values tended to account well for the academic accomplishments of East Asian students in international tests. Choi and Kwon (2012) also found that Korean students' beliefs about knowledge represented a mix between traditional Korean culture and modern culture. All of these research results signal that cultural tradition works as a hidden factor that influences learning.

In recent years, Korea has attempted to move away from a traditional teacher-centered and passive way of learning and toward promoting students' independent learning to fulfill educational needs in a way that adapts to rapid social changes. During this period of adaptation, some interactions may exist between cultural traditions and the educational reform movement. In addition, possible interactions might influence not only learning environments and school settings but also students' beliefs about knowledge and learning (i.e., epistemological beliefs), taking into account that students acquire knowledge and learning strategies at school (Hammer & Elby, 2002; Paulsen & Wells, 1998). Accordingly, it seems that possible interactions among cultural, educational, and social factors can hamper or accelerate a smooth educational transition in tandem with a changing society. With this inquiry, this study is twofold. The first aim is to describe how cultural traditions have been

reflected in the Korean curriculum along with changes in Korean society. Korea has a national curriculum that describes the purpose, structure, and content of Korean education. It has been modified corresponding to educational needs which are related to social, political, and cultural changes in Korean society. The second aim is to understand the epistemological beliefs of Korean middle school students and their confidence in learning independently in the cultural context. Recently, independent learning has gained traction among Korean educators attempting to prepare students to actively respond to an unpredictable future society. Given that epistemological beliefs are aligned with students' approaches to learning (Hofer & Pintrich, 1997), an exploration of students' epistemological beliefs, along with their confidence in independent learning, may give educators insights about what students believe about knowledge and how students learn. In interpreting the research results, I take into account cultural factors. Students' epistemological beliefs have been formed by teachers' teaching styles, learning environment, and curriculum, which are in turn indirectly and directly affected by culture. Thus, the results of this study are interpreted in the Korean cultural context. In addition, comparisons of students' epistemological beliefs by grade (Cano, 2005) and gender (So, Lee, Roh, & Lee, 2010) are explored. It is likely that epistemological beliefs change as students progress. Also, female and male students might hold different epistemological beliefs, given that men and women experience different societal expectations. Along these lines, understanding differences in epistemological beliefs by grade and gender may help educators discern the cultural influences shaping epistemological beliefs and affecting students' confidence in learning.

Part I: Cultural Traditions of Education in Korea

This section introduces educational dimensions of cultural traditions in Korea. One essential tenet of Korean education is *HongIck-InGan* (홍익인간, 弘益人間). This is the idea that human beings should broadly benefit the human world or devote themselves to the welfare of mankind. It focuses on human beings and values, ethics, and morals in interpersonal interactions. The idea has persisted up to this day and was legitimated as a prime principle of Korean education in education law in 1949 (Park & Jung, 1989). Every Korean curriculum from the first to the present stipulates that *HongIck-InGan* is the core educational spirit. In addition, *HongIck-InGan* is the founding ideal of the first Korean Kingdom, *Gojoseon*. For a long time, *Gojoseon* has played an important role in national unity by promoting the idea that Koreans are descended from one ethic group. Besides *HongIck-InGan*, the most influential factor on Korean education is the Confucian tradition (Choi & Kwon, 2012; Kim, 2007; Shin, 2012; Yu & Bairner, 2011). Confucianism has influenced people's thought about what and how students learn for many years. Four main aspects of the Confucian tradition have had a considerable effect on Korean education.

Above all, Confucian tradition valorizes education (Marginson, 2011; Shin, 2012). In this tradition, men of letters and academic success are respected and admired. Education has been treated as a major path to obtaining socially recognized jobs and achieving higher social status. Currently, Koreans still consider education as important and therefore maintain high school attendance rates. According to Statistics Korea, in 2012, 92.6 % students graduated from high school and 71.3 % of high school graduates go to college. According to Hwang (2001), in 2001, South Korea spent 7.0 % of GDP on education, including private and public education, compared to 6.4 % in the United States. Korea statistics reported that in 2012, 69.4 % of elementary, middle, and high school students attended private schools. This enthusiasm for education is reinforced by a government-hosted national test system (Leung, 2006). In the past, passing a centralized national examination served as the ticket to becoming a socially respected governmental officer, public servant, or administrator. This centralized test system has been handed down from generation to generation. Even in our time, South Korea has a nationwide competitive college entrance exam, which is conducted only once per year.

Second, in the learning process, the Confucian tradition stresses exertion of effort. The importance of effort in learning seems to be a unique characteristic in Confucian culture compared to Western culture (Chan & Elliott, 2002; Hess, Chih-Mei, & McDevitt, 1987). Students in Confucian culture believe that learners cultivate their learning abilities through hard work so that they can gain a learning achievement. Hence, students are expected to persevere and remain diligent in their study. Academic failure and low achievement are considered to indicate a lack of effort. Even those who succeed in their field are asked to humble themselves and invest more effort in education.

Third, the Confucian learning tradition is content oriented and teacher driven (Choi & Kwon, 2012). Teachers are referred to as authority figures who have perfect knowledge and correct answers. Students are expected to accept what teachers deliver and keep reading and memorizing the classics. That is to say, traditional learning has focused on the acquisition of correct knowledge rather than on the accretion of new knowledge (Ho & Hau, 2010), and the major form of learning is mechanical and rote. This traditional learning style is opposed to recent educational trends that emphasize students' participation in learning, creativity, and critical thinking and problem-solving skills.

The fourth influential Confucian cultural tradition on South Korean education is collectivism (Dalton & Ong, 2005; Yum, 1988). Koreans tend to value groups over individuals. In families, children are expected to respect and obey their parents. Parents tend to believe that educating and taking care of their children is their duty, and the success or failure of their children is a direct reflection on the parents themselves (Huang & Gove, 2012; Stankov, 2010). Even today, it is easily observable that Korean parents become actively involved in their children's learning, hoping that their children will have better lives (Shin, 2012). It seems to be pervasive that parents endeavor to promote their children's academic achievements, and children, in turn, obey their parents and try to meet their expectations, ascribing their success to their parents' support.

Social Changes and Cultural Traits in Curricula

Along with Korean cultural traditions, the influx of political ideology, democracy, and Western cultural values such as individualism and constructivism have recently come to affect Korean education. This influence can be found in past curricula. In Korea, much as in other countries, social changes, needs, and norms and goals, as well as cultural values, influence the design of the curriculum (Robinson, 1994).

The modern Korean education system is generally considered to have started in the aftermath of World War II, when the Korean peninsula was divided into North and South. South Korea was governed by the United States military occupation, with the agenda of installing democracy and capitalism, whereas North Korea was occupied by the communist Soviets. In 1948, the first government of the "Republic of Korea" was officially established in South Korea. The Education Ministry of Korea formulated the first national curriculum in 1954, pursuing a democratic ideology with reference to the American educational system. At that time, the urgent educational issues were to build a foundation for Korean education and to jettison the vestiges of Japanese colonial rule (Lee, Jung, & Kim, 2006) because a series of historical tragedies in the 1940s and 1950s (i.e., the Japanese colonial period, WWII, and the Korean War) had uprooted Korean heritage and culture, along with the existing social, political, and economic systems.

During the 1970s and 1980s, education was considered one major trigger for promoting economic progress and moving out of poverty (Stankov, 2010). Many people willingly invested significant resources in education to enrich human capital; this reflects the Confucian tradition of emphasizing education. Besides, the overall trends of the 1960s, 1970s, and early 1980s were nationalism, anti-communism, and economic growth. These were well displayed in the South Korean Charter of National Education, which was written in 1968 and abolished in 1994. It included the following phrases: "advocating the public good and order," "valuing a spirit of mutual help and cooperation rooted in faith/loyalty and respect/affection," "national development is equivalent to individuals' development," "the way of devoting yourself to the nation is having an anti-socialist and a strong democratic mindset," and "diligent Koreans with pride and dignity" (National Archives of Korea, 1968). These phrases reflect social changes and traditional Korean values such as Confucianism, valuing effort, and collectivism. These cultural traditions can also be found in past social studies curricula in terms like "diligence," "hard work," and "cooperation." For instance, the third social studies curriculum (1979) set an educational goal "to improve decision making skills as a group" (p. 4), and stated, "by working diligently and cooperatively with others, all the people will be able to enjoy happy lives" (p. 2).

With the increasing awareness of globalization, the curriculum began to shed more light on how to prepare students for the twenty-first century global society. During the 1990s, the curriculum was revised to reflect these changes in Korea as well as the rest of the world. The fifth (Korean Ministry of Education, 1987) and the sixth curricula (Korean Ministry of Education, 1992) seem to be intermediate stages

in this process. The fifth and sixth curricula still valued Korean cultural traits of collectivism and nationalism; conversely, the traditional approach to learning did not gain any traction. Passive and rote learning had traditionally been considered appropriate, but the fifth curriculum began to describe ideal citizens as independent and creative. Students were encouraged to develop "independent decision-making skills," "problem-solving skills," and "creative thinking skills." These descriptors of ideal citizens differed from the traditional Korean ideal given that fostering individualism and creativity was not the concerns of traditional Korean education.

As time has gone by, the Korean curriculum has increasingly concentrated on globalization and global society. Since the seventh curriculum (Korean Ministry of Education, 1997), one common goal of the curriculum has been to educate students to be global leaders as well as global citizens. Nowadays, some traditional features in the curriculum have noticeably faded away as South Korean society has changed. For example, in recent years, the growing influx of foreign workers into Korea and permeation of information and communication technology have slowly but surely created a culturally heterogeneous society in Korea. It has become difficult to insist that Koreans maintain one racial group in a global society. To prepare students for a multicultural and global society in the information era, the seventh curriculum began to address the multicultural aspects of Korean society. In 2009, the curriculum was revised to contain a clear statement regarding multicultural and global education. The curriculum states that, ideally, Korean citizens will "understand cultural values from a position of cultural relevance," "be open-minded toward the world," and "participate in community with a consideration of others" (Korean Ministry of Education, 2009, p. 4). Although the previous curricula were attentive to multicultural society, interdependent worlds, and global citizens, they connoted multiculturalism and globalism without such direct remarks.

While traditional features and cultural values seem to have abated, some cultural traditions have begun to gain attention again. Lately, the rapid growth of technology and widespread Internet has reduced in-person communication among young students, who are spending more time playing alone. This trend might weaken students' understanding about how to appreciate human dignity and how to conduct in-person social interactions. Therefore, many educators are asserting the need to educate students to respect and coexist with other people in harmony. In 2011, the curriculum was partially revised to place more value on character and moral education and emphasize in-person, interactive activities. Also, Korean educators and researchers created and distributed booklets containing a variety of hands-on activities requiring students to interact with their peers.

Part II: Epistemological Beliefs and Confidence in Learning

This section introduces research on Korean middle school students' beliefs about what knowledge is and how they approach learning. First, the conceptual framework is described in relation to epistemological beliefs and their relationship to learning independently. Then the research design and results are explained.

Literature Review

Epistemological Beliefs and Culture

Epistemological studies largely take two forms: development of epistemological beliefs and dimensions of epistemology. In other words, researchers in this field focus more on the developmental sequence of epistemology or more on the dimensions of epistemology. Perry (1968) pioneered a theory of epistemological development. He studied college students' intellectual growth to determine how college students interpreted their educational experiences. As a result, he suggested the developmental scheme of epistemological beliefs. Since his work, many scholars explored the developmental path of epistemological beliefs (e.g., Baxter Magolda, 1992; King & Kitchener, 1994). Although they named the developmental stages differently, most studies share the notion that epistemological beliefs develop from absolute, to relative, to constructive viewpoints as students become more educated. Unfortunately, this path tends to be inapplicable to non-Western samples. Zhang (1999) showed that Chinese students exhibited the reverse path of that described by Perry as they approached graduation. Zhang argued that educational and cultural factors might reveal different developmental paths. That is, the Chinese test system and cultural emphasis on hard work and academic success may influence the formation of epistemological beliefs.

The model of epistemological beliefs Schommer (1994) suggested is distinct from the previous developmental schemes. While from a developmental approach, epistemological beliefs are considered a core set of beliefs about knowledge and knowing (Perry, 1968). Schommer (1994) newly conceptualized them as being made up of more or less independent multiple dimensions, which may develop asynchronously. She stated that epistemological dimensions are about what individuals believe about the source, certainty, and organization of knowledge, as well as the control and the speed of learning. Yet, these dimensions do not account well for the epistemological beliefs of non-Western samples (e.g., Chan & Elliott, 2002, 2004; Muis & Sinatra, 2008; Youn, 2000). Chan and Elliott (2002, 2004) explored the epistemological beliefs of Hong Kong preservice teachers and modified Schommer's dimensions into four different dimensions (i.e., Authority/Expert knowledge, Certainty of knowledge, Learning effort/process, Innate/Fixed ability), which are more pertinent to Asian culture. Choi and Kwon (2012) also explored Korean preservice teachers' epistemological beliefs based on Schommer's dimensions and found that the dimensions were not applicable to the epistemological beliefs of Korean preservice teachers. Korean preservice teachers valued effort in learning and respecting authority figures. These components are not highlighted in studies having Western samples. These inconsistencies between Western and non-Western samples prompted inquiries about the influence of cultural and environmental components on epistemological beliefs. This suggests that it is necessary to interpret epistemological beliefs in cultural context.

In addition, gender can be one component to understanding epistemological beliefs. Belenky and her colleagues (1986) focused on women's assumptions about knowledge, reality, and authority, proposing five types of knowledge that might be predominant epistemic patterns of women. Other research studies also explored epistemological beliefs by gender without focusing only on one gender. For example, So and her colleagues (2010) revealed that one epistemological factor, "innate ability," showed a significant gender difference, in that female students tended to have more naive beliefs about innate ability than male students. Ozkan and Tekkaya (2011) found epistemological difference in justifying knowledge by gender. In their study, female seventh graders were more likely than male seventh graders to believe that knowledge is constructed and justified through reasoning process. Considering the differing social expectations for men and women in different cultures, gender should be an influential factor on construing epistemological beliefs in a cultural context.

Epistemological Beliefs and Independent Learning

Many studies have shown that epistemological beliefs are linked to the degree of independent learning (King & Kitchener, 2004; Paulsen & Feldman, 2005; Lee & Mun, 2007; Watkins, 2000). For instance, Watkins (2000) stated through a meta-analysis that higher-quality learning strategies are associated with an internal locus of control. Paulsen and Feldman (2005) showed that the less likely students are to believe in fixed ability and certain/simple knowledge, the higher their aptitude for learning independently. Lee and Mun (2007) discovered differences in the forms of epistemological beliefs of Korean students according to levels of self-regulation in learning (i.e., high, moderate, or low). A high self-regulation group of students tended to hold sophisticated epistemological beliefs that knowledge is tentative and must be justified through one's own reasoning processes. On the other hand, the low self-regulated group of students tended to believe that knowledge is certain, simple, and handed down by authorities and external resources.

In understanding epistemological beliefs and approach to learning, cultural factors may play an important role (Tumkaya, 2012; Watkins, 2000; Youn, 2000). Youn (2000) explored epistemological beliefs in relation to learning and revealed a difference between American and Korean students in terms of independent and interdependent self-construal. The differences are explained based on cultural differences such as individualism, collectivism, and teacher-student interactions. She found that independent construal has a positive connection to learning beliefs. Individualistic rather than collectivistic emphasis is related to the development of students' epistemological beliefs about learning. In this study, epistemological beliefs related to learning are considered socially shared perceptions about the nature of knowledge (Jehng, Johnson, & Anderson, 1993). That is, how students regulate their learning may be easily explained based on cultural traits.

Research Design

Participants

The participants in this study were students who attended middle school in Korea in 2011. Research participants were recruited via e-mail. Teachers from 11 public schools volunteered to participate in this study. Teachers from four middle schools in rural areas were selected because I think rural areas are more likely than urban areas to be in a slow transition from traditional culture to modern western culture and they have no tendency to highly rely on private education and Web-based learning but teachers and public education. For convenience, teachers distributed the questionnaire in class, explaining the purpose of this research and students' rights as participants. Students completed and returned the questionnaires to the teachers of their own accord, and the teachers mailed the completed questionnaires back to the researchers. A total of 531 students from four schools participated in this study, including 287 male students (54.0 %) and 244 female students (46.0 %). 183 students were in seventh grade (34.5 %), 34 were in eighth (6.4 %), and 314 were in ninth (59.1 %). The average ages of seventh, eighth, and ninth are 13, 14, and 15 years old, respectively.

Instruments and Data Analysis

To measure students' beliefs about knowledge and learning, the Epistemological Beliefs Scale (EBS) (Chan & Elliott, 2002) was used. To measure students' confidence in independent learning, students read statements that explained self-regulated learning: "I can set a learning goal and make a study plan independently" and "I, by myself, study and evaluate my learning process outcome on my own." Then, students self-reported the degree of their confidence in independent learning out of five points based on how close they thought they were to the statement.

The EBS consists of 30 simple statements. Individuals responded using a 5-point rating scale (1 = strongly disagree; 5 = strongly agree). The EBS was validated by means of confirmatory factor analysis (GFI = .93; AFGI = .93; RMSEA = .058). The reliabilities of the four factors ranged from .6 to .7. The original questionnaire is in English and mainly used for undergraduate students. Since the participating students' first language was Korean, a Korean version of the questionnaire (Choi & Park, 2013) was used. The Korean version of the questionnaire for middle school students was validated by confirmatory factor analysis (GFI = .92, AGFI = .90, CFI = .92, and RMSEA = .062); the reliabilities of the four factors ranged from .6 to .75. In addition, along with providing their demographic information, students were asked to rate their level of confidence in learning independently on a five-point scale. Before analyzing data, reverse-worded items (item number 1, 8, 12) (see Table 4.1) were recorded. For the validation of the epistemological model, this study conducted principal axis factoring with varimax rotation using SPSS 17.0.

Afterward, correlations, regression, *t*-tests, one-way ANOVAs, and post hoc test (Bonferroni) were applied to investigate whether there was any significant difference in the identified components and groups (e.g., by gender and grade).

Results

Epistemological Beliefs

Scree plot and principal axis factoring with varimax rotation produced four factors with eigenvalues greater than 1.0. These four factors explained 39.1 % of the total sample variation. Items under each factor greater than .4 factor loading were selected as shown in Table 4.1. In explaining four factors, we found the items loaded on factors were similar to Chan and Elliott's study (2002). Thus, in reference to Chan and

Table 4.1 Epistemological belief factors

Factor	Items (factor loading)	α	n
Learning effort/process	5. Learning something really well takes a long time or much effort (0.74)	0.61	4
	6. Everyone needs to learn how to learn (0.65)		
	3. Getting ahead takes a lot of work (0.53)		
	10. If people can't understand something right away, they should keep on trying (0.40)		
Innate/fixed Ability	7. Some people are born good learners; others are just stuck with limited abilities (0.80)	.76	5
	4. Our ability to learn is fixed at birth (0.68)		
	24. Some children are born incapable of learning well in certain subjects (0.68)		
	16. The really smart students don't have to work hard to do well in school (0.65)		
	25. The ability to learn is innate/inborn (0.59)		
Authority/expert knowledge	21. I have no doubts in whatever the experts say (0.54)	.60	5
	12. I often wonder how much experts really know (−0.58)		
	1. Sometimes, I don't believe the facts in textbooks written by authorities (−0.55)		
	8. Even advice from experts should often be questioned (−0.52)		
	30. I still believe in what the experts say, even though it differs from what I know (0.80)		
Certainty of knowledge	13. Scientists will ultimately get to the truth if they keep searching for it (0.84)	.63	3
	2. If scientists try hard enough, they can find the truth to almost anything (0.82)		
	14. Anyone can figure out difficult concepts if one works hard enough (.40)		

Elliott (2002), the first factor was labeled "Learning effort/process" (4 items, α=.61), the second factor was "Innate/fixed ability" (5 items, α=.76), the third was "Authority/expert knowledge" (5 items, α=.60), and the fourth was "Certainty of knowledge" (3 items, α=.63). α for a total of 30 items was .71. "Learning effort/ process" is whether participants placed value on learning process and effort in learning. "Innate/fixed ability" refers to beliefs about the possibility that learning ability can improve. "Authority/expert knowledge" is related to the sources of knowledge. It shows the degree of trust in authorities and experts. "Certainty of knowledge" indicates participants' perception of how certain or changing knowledge is.

Epistemological Beliefs and Confidence in Independent Learning

Table 4.2 shows the general traits of the middle school students in this study in terms of the four dimensions of epistemological beliefs and confidence in independent learning by using the mean ($\overline{M}$) and standard deviation (SD). Most noticeably, the middle school students in this study tended to value "Learning effort/process" highly, as the average rating score is over 4 out of 5 points. This trait closely reflects the traditional educational value emphasizing effort in learning whoever you are, even for high achievers. Interestingly, students also tended to believe that learning ability is innate and barely changes, while learning effort may have a reverse connection to fixed ability. On the other hand, students may have doubts about "Authority/expert knowledge" and "Certainty of knowledge" given that the average rating scores of those dimensions were below 3 out of 5 points. It is likely that students have moderate confidence in independent learning.

When it comes down to how the belief factors and independent learning are related, as shown in Table 4.3, students' confidence in independent learning has statistically significant connections with all four dimensions of epistemological beliefs. As middle school students in this study have confidence in learning by themselves, they did not believe that learning ability is determined at birth ($r=-.11$, $p<.01$) and that experts' knowledge is acceptable with no doubt ($r=-.15$, $p<.01$).

Table 4.2 Descriptive statistics of Korean middle school students

	$\overline{M}$	SD
Learning effort/process	4.07	.57
Innate/fixed ability	3.50	.75
Authority/expert knowledge	2.55	.45
Certainty of knowledge	2.71	.81
Confidence in independent learning	2.92	.88

Note: $\overline{M}$ indicates the mean of means of the items corresponding to each epistemological belief factor for all participants

Table 4.3 Correlations between epistemological beliefs and confidence in independent learning

	1.	2.	3.	4.	5.
1. Learning effort/process	1	.04	−.14**	.23**	.25**
2. Innate/fixed ability		1	.02	−.11*	−.11*
3. Authority/expert knowledge			1	.03	−.15**
4. Certainty of knowledge				1	.10*
5. Confidence in independent learning					1

Note: **Correlation is significant at the 0.01 level (2 tailed)
*Correlation is significant at the 0.05 level (2 tailed)

They tended to value learning effort ($r=.25, p<.01$); however, they tended to believe knowledge is somewhat fixed and unchanging ($r=.23, p<.01$). As students in this study were more confident in learning by themselves, they tended to believe that knowledge is certain ($r=.10, p<.05$) but not equal to authority's and experts' knowledge ($r=-.15, p<.01$). These results describe general patterns of students without a consideration of group or personal differences. Thus, the group differences were examined to see the detailed information about each dimension.

Group Differences in Epistemological Beliefs and Confidence in Independent Learning

Table 4.4 shows the results from *t*-test, ANOVA, and post hoc test. There were statistically significant differences in epistemological beliefs by gender and by grade. By gender, female students were more likely to have "Confidence in independent learning" ($t(529)=-3.57, p<.01$, Cohen's $d=-.34$) and believe in "Authority/expert knowledge" ($t(529)=-.3.31, p<.01$, Cohen's $d=-.08$) than male students were. Further, the low value of Cohen's d suggests little practical significance. In addition, "Learning effort/process," "Innate/fixed ability," and "Certainty of knowledge" differ with respect to grade, $F(2, 528)=9.18, p<.01$, partial $\eta^2 = .034$, $F(2, 528)=8.74$, $p<.01$, partial $\eta^2 = .033$, $F(2, 528)=8.67, p<.01$, partial $\eta^2 = .032$, respectively. Partial η^2 values were considered to have a comparatively small effect size. The results revealed that upper-grade students were more likely to believe in learning effort and innate ability than lower-grade students. Also, upper-grade students were less likely to believe that knowledge does not change. This research result corresponds to one aspect of the developmental view about epistemological beliefs, that the more they are educated, the more students tend to see knowledge as uncertain.

A Bonferroni comparison was conducted to see the differences between grades. It revealed some epistemological differences between seventh and ninth grade students. In the dimension of "Learning effort/process," there are significant differences in between seventh and ninth graders and between eighth and ninth graders. Ninth graders tended to value learning effort more than seventh and eighth graders did. When it comes to "Innate/fixed ability," there were significant differences between seventh and eighth graders and between seventh and ninth graders. In this

Table 4.4 Differences in epistemological beliefs and confidence in independent learning by group

	Learning effort/ process	Innate/fixed ability	Authority/expert knowledge	Certainty of knowledge	Confidence in independent learning
Gender					
Male	4.09(.58)	2.72(.80)	2.49(.80)	3.46(.44)	2.80(.88)
Female	4.05(.57)	2.71(.69)	2.62(.69)	3.55(.45)	3.07(.72)
t (529)	.75	.19	−3.31	−1.21	−3.57
p	.456	.851	.001**	.23	.00**
Grade					
Seventh	3.93(.61)	2.52(.72)	2.53(.41)	3.71(.81)	2.84(.79)
Eighth	3.82(.52)	2.85(.76)	2.73(.43)	3.37(.73)	2.94(.98)
Ninth	4.15(.54)	2.81(.75)	2.54(.47)	3.40 (.80)	2.97(.91)
$F_{(2, 528)}$	9.18	8.74	2.99	8.67	1.32
p	.00**	.00**	.06	.00**	.27

Note: The values represent $\bar{M}$ (SD). **Correlation is significant at the 0.01 level (2-tailed)

study, seventh graders tended to believe learning ability changes little. In addition, there is a difference in "Certainty of knowledge" between seventh and ninth graders. Ninth graders in this study are less likely than seventh graders to believe that knowledge is firm and "out there."

Discussion

This study provided an overview of Korean culture and curricular changes and explored interrelations between middle school students' epistemological beliefs and confidence in independent learning. The results were interpreted in cultural context, and then three significant findings were revealed in connection with cultural and social changes.

First, in general, students in this study still valued effort in learning, as in traditional Korean education. This result replicates recent studies that compared to Western students, Asian students tend to consider learning effort and hard work as important (e.g., Asakawa, 2001; Chan & Elliott, 2004; Choi & Kwon, 2012; Kember & Watkins, 2010). Even though curricula have been revised several times as Korean society has changed, the cultural tradition seems to remain in people's minds. Considering that the most recent curriculum rarely mentions effort in learning, the value placed on effort may permeate people's lives rather than being present in the curriculum alone. It is likely that Korean culture creates learning environments in which students are forced to exert effort and endure difficulty in learning. On the other hand, the results from this study showed some cultural changes in education. Most middle school students in this study have doubt about the certainty of knowledge. This is different from the traditional image of knowledge in Korea, in

which it was considered to be "given" and to exist "out there" and learners were expected to listen to the teacher and memorize the classics. Constructivism has widely affected Korean education, and Korean education now highlights students' hands-on learning and firsthand experience. This new cultural trend may be weakening students' beliefs about certainty of knowledge. In general, this result replicates Chan and Elliott's study (2002, 2004). They examined Hong Kong preservice teachers' epistemological beliefs, finding that unlike Western students, Hong Kong students valued learning effort and held weak beliefs about certainty of knowledge. The researchers hypothesized that Chinese Confucian culture may affect students' beliefs about learning efforts and that the influx of western culture and historical background may influence students' beliefs about certainty of knowledge.

Second, when it comes to epistemological beliefs, students in this study sent a mixed message. Students who valued effort in learning tended to be confident in independent learning and vice versa. That is, the more they believe they are able to learn autonomously, the more students make effort to learn. In addition, both groups tended to believe that knowledge changes little and authorities and experts' knowledge are less reliable. This is inconsistent with the findings of previous studies that self-regulated learners believe in the uncertainty of knowledge (e.g., Boden, Smartt, Franklin-Guy, & Scudder, 2005; Paulsen & Feldman, 2005) and that those who believe in certainty of knowledge rely on authorities or experts in justifying knowledge (e.g., Kuhn, Cheney, & Weinstock, 2000). Presumably, underlying factors such as culture and learning environment are apt to form this mixed pattern of epistemological beliefs that Korean middle school students evinced in this study. One possible influence on students' beliefs about learning is technology, which changes the learning environment and widens the range of knowledge resources. Historically, the source of knowledge was the teacher alone, but now the source of knowledge is numerous. Students easily access a variety of information whenever they want; they are able to grasp knowledge outside of the physical classroom via the Internet. However, it is very interesting that students still believe that knowledge is concrete although they can access to multiple different forms of knowledge. Traditionally, Korean education values learning efforts and certainty of knowledge. Along this line, students still hold traditional beliefs about knowledge and learning while the sources of knowledge vary.

Another possible reason for the intertwined connections between confidence in independent learning, learning effort, and certainty of knowledge may be because of cultural tradition that places great value on academic success and the Confucian value of self-discipline. Learning efforts seem to be emphasized in Asian societies compared to Western societies. Korea is not exceptional. Socially and culturally, Korea placed great emphasis on education (Robinson, 1994) and children's duties included good academic performance and self-discipline (Kim & Park, 2006). Korean society still values academic success, and many students are asked to continue to learn so that they can acquire academic achievements. This "keep learning focused on academic success" culture might contribute to connecting beliefs about learning effort to students' confidence in independent learning, since it seems that learning effort is deeply related to independent learning. Interestingly, this study

shows a positive relationship between beliefs about certainty of knowledge and learning effort. In this study, students who valued learning effort and had confidence in learning tended to believe that knowledge is certain. This result indicates that students may exert effort to memorize facts, and that those who consider themselves to be independent learners may try to learn knowledge in passive ways. These results are opposite to studies with Western samples (e.g., King & Kitchener, 2004; Paulsen & Feldman, 2005), which revealed that self-regulated learners were likely to consider knowledge to be ill structured, so they try to justify knowledge in multiple ways.

Third, beliefs about "Authority/expert knowledge" differ by gender. Female students in this study were more likely to believe in what an authority says compared to male students. The gap between female and male students may reflect the aspect of Korean Confucian culture that women and girls are more strongly asked to obey men and authority. Although many women are now entering the workforce and their social status has changed to some degree, women and girls might be still under the cultural influence of that tenet of obedience. But I would also suggest that gender differences in epistemological beliefs may be affected by interaction between age and cultural expectation. For example, Aypay (2011) and Ozkan and Tekkaya (2011) studied Turkey students' epistemological beliefs. While Aypay found no epistemological difference by gender, Ozkan and Tekkaya (2011) revealed some epistemological differences among students by gender. One dissimilarity of the two studies is the age of the samples. Aypay (2011) explored student teachers' epistemological beliefs while Ozkan and Tekkaya (2011) examined those of seventh graders. Taking into account the similarity in sample age between Ozkan and Tekkaya's study (2011) and this study, I argue that younger students may be affected more by cultural context, including pressure to be obedient. Presumably, cultural expectation regarding social roles may influence young female students' beliefs about authority.

Besides gender, there are differences in epistemological beliefs by grade. According to Tumkaya (2012), freshman and senior students tended to believe in learning effort compared to junior students. However, compared to the lower-grade students, the upper-grade students in this study were more likely than lower-grade students to believe in learning effort and innate ability. This may be related to the Korean testing system having highly competitive and content-oriented college entrance exams (Choi & Kwon, 2012). Even middle school students tend to be asked to study hard and be prepared to go to renowned high schools that may help them get into top universities. Students often learn subject matter in advance of when it is taught in the school curriculum, and the content they learn ahead can be inappropriate for their cognitive developmental status. In this case, middle school students might feel frustrated with and burdened by learning and pressure about academic success, and concerns about failure may make students more likely to study harder and believe in the inflexibility of learning abilities.

In a nutshell, I tried to determine how social change and Korean traditions interact with Korean education and students' thoughts. People are enculturated at home, at school, and in society in formal as well as informal ways. Keeping pace with societal changes, Korea plans and carries out educational reform movements. It is

important to make successful and appropriate educational interventions. To make this happen, it is necessary to determine how cultural traditions and other underlying factors affect people's thoughts about education. Throughout Korean history, exigent social needs and circumstances work to both strengthen and weaken Korean cultural traditions. Therefore, we should shed new light on the traditional cultural features in context of social changes in order to better education in Korea.

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Chapter 5
Youths' Reasoning About Higher Education in Macao

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Abstract Statistics still show an upward trend for Macao students registering at higher education institutions. However, when higher education is not necessary for job-hunting, what makes Macao youth still desire higher education? The current, discovery-oriented qualitative study explored the perceptions about and reasons for higher education amongst a group of Chinese youth in Macao. Six focus group interviews were conducted with participants at a local university, and the transcripts analysed through in-depth thematic analysis. Themes corresponding to social networking, normative reasoning and career prospects emerged, and the findings suggest that youths might not perceive higher education as a way of knowledge acquisition, but rather see university life as an opportunity to expand guanxi in their planning for their future careers. The outcomes have implications for future research exploring social goals and social–cultural values of tertiary education amongst Chinese youth.

Keywords Career prospects • Focus groups • Guanxi • Normative reasons

What does a bachelor's degree mean to the youth in Macao? Macao is known as the "Las Vegas of the East", and the revenue from the gaming sector ensures a high income to the SAR government and plentiful job opportunities for local people. Developments in recent years have elevated the demand in the labour force, and in June 2013, the unemployment rate was only 1.6 % with the highest demand for labour in the gaming industry (Statistics and Census Service [hereafter DSEC], 2013). In the gaming sector, the education requirement is relatively low with almost 90 % of vacancies for dealers, cage cashiers and other positions expecting only junior or senior secondary education (i.e. Grade 8 to 12 equivalent) (DSEC, 2012).

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Contrastingly, other sectors (e.g. public works, banking, insurance industry, government) mostly require tertiary education. However, an extremely low unemployment rate decreases the need for competiveness in job-hunting, which could, for some, diminish the motivation for higher education (cf. Lee, Kang, & Yum, 2005; Lee & Lee, 2012).

The Chinese background of the majority population in this city-state furthermore suggests that the youth in Macao lean towards the Confucian heritage culture that value education and have high achievement expectations. Moral learning, contributing to society and a personal utilitarian orientation (Guo, 2015) and social goals (King, McInerney, & Watkins, 2010) seem to characterise educational motivation in this context. Parents tend to implant the values of furthering one's education in their children from early childhood, and pleasing one's parents seems to play a role in planning for the future (Urdan, Solek, & Schoenfelder, 2007; Yeh & Bedford, 2003). Nonetheless, the need to care for ageing parents amongst youth in Macao has seemingly diminished, particularly given the increase in wealth evident in this city-state and the older generation nowadays able to take care of their own retirement needs. However, an urgency to enter a lucrative job market and "easy money" for self-gratification could diminish the motivation for higher education. As noted above, Macao has a low unemployment rate, and jobs with lower educational requirements (e.g. full-time employment in the gaming sector) tend to pay better than those jobs requiring a bachelor's degree, at least initially. In this context, it seems as though the socio-economic realities are somewhat at odds with social-cultural values when it comes to the motivation for higher education.

Given the socio-economic and social-cultural context of Macao, higher education may have different meanings for the youth in this city-state. Thus, the present study explored the perceptions and motivation for higher education during the career identity exploration phase of Macao youth in late adolescence. The focus was on Chinese youth in Macao in the age group between 18 and 23 years and studying at a local university. A discovery-oriented qualitative study with focus groups was deemed appropriate to gain an understanding of the meanings that youth in Macao attach to entering university and pursuing a bachelor's degree.

Traditionally, theories regarding motivation for higher education focused on individual characteristics. Researchers focused on personal attributes such as expectancy and achievement ability (Berndt & Miller, 1990), task motivation (Sockalingam, Rotgans, & Schmidt, 2011), self-efficacy (Wentzel & Wigfield, 1998) and self-regulation (Casillas, et al., 2012). These attributes are studied from the cognitive-motivational perspective examining individual achievement goals. In recent years, social-cultural values and the interdependent self have also become relevant in the study of students' academic engagement (e.g. Liem, Martin, Porter, & Colmar, 2012; Watkins, Mortazavi, & Trofimova, 2000). King and Watkins (2012) suggested that social goals and personal meanings should be taken into consideration in people's pursuit of further education, and Watkins and Hattie (2012) investigated the role of social goals on academic achievement. Hofer and Peetsma (2005) concluded that students do not work on one goal at a time and that they have to prioritise from time to time and from task to task.

Germeijs and Verschueren (2006) and Berzonsky (2004) approach motivation for further education as the individual's normative developmental pathway towards establishing a career identity. In late adolescence and early adulthood, the individual not only establishes a sense of personal and social identity but also explores and commits to a career identity—that is, a sense of where am I going and what will I be/do in my future life. Integral to the process of constructing career identity is the motivation for further education. Higher education and a bachelor's degree are pathways towards establishing oneself in a future that would meet expected goals and serve one's needs. However, not all youth value higher education for what it can contribute to a future career plan; some seemingly place a higher value on early career entrance and is not motivated to further their studies after completing school.

In Macao, there has been little research exploring the reasons why students pursue higher education and the potential interrelatedness of culture and socio-economic status to students' social goals of pursuing higher education. In this study, we assumed that intrinsic goals might give way to social-cultural values as reasons for higher education. It is in this social-cultural context that we asked the questions of why some youth already enrolled at a local university choose to pursue higher education. What do the Macao youth perceive as the gains when attending a university and earning a bachelor's degree? How do they value the knowledge accrual envisioned for higher education? What are the reasons for pursuing higher education amongst university students in Macao?

Method

Aiming to explore the meaning of higher education amongst the youth studying at a local university in Macao, we employed a discovery-oriented qualitative approach and focus group interviews (Creswell, 2009; Hollander, 2004). The intent was to gain a deeper understanding of the perceptions and subjective meanings given to higher education and as expressed by a particular group of Chinese youth in Macao. The focus group approach was chosen for data collection because it could stimulate informants' thoughts during group discussion and go beyond the preconceptions about the topic of the researchers/facilitators (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). Perceived meanings could vary across groups providing rich textual data for analysis and a rich description of the phenomenon in the local context.

Informants

In this study, the researchers employed a convenience sampling approach (Creswell, 2009) recruiting first year students in a psychology course at a local university. Students in the course were required to complete a certain number of research projects in order to earn credit for the course and registered for the participant pool on

the SONA management system. Twenty-eight students, 7 males and 21 females aged between 18 and 23 years, participated. All the participants were of Chinese ethnicity and represented different faculties and majors at the university: 22 informants were from the Faculty of Business Administration majoring in accounting ($n=7$), business administration ($n=1$), finance ($n=3$) and hospitality and gaming management ($n=11$); six informants were from the Faculty of Social Sciences and Humanities majoring in communication ($n=3$), economics ($n=2$) and government and public administration ($n=1$). Since the students could sign up for any of the six sessions, the focus groups comprised a mix of majors and all groups compared well in terms of their overall grade point average (GPA$=3.10$ out of 4.00) for the first semester of study. Parents' education levels varied from having completed primary school (1 father and 8 mothers), secondary school (23 fathers and 17 mothers), a bachelor's degree (2 fathers and 3 mothers) and a postgraduate degree (2 fathers). Furthermore, 17 informants had a part-time job working on average 11.41 h per week while also studying full-time at the time of the interviews in April 2013.

Data Collection

Six semi-structured focus group sessions were conducted. Group size varied from 3 to 6 persons, with two groups comprising female students only and the other four groups of mixed gender (Onwuegbuzie et al., 2009). Six informants were familiar to the focus group facilitator prior to the data collection, but they attended four different focus group sessions thus reducing the familiarity effect. Two groups consisted of informants who knew others within the group, and one group comprised of informants who did not know each other. In the remaining three focus groups, informants had met other informants in class but were not very familiar with each other, and some informants did not know others at all.

The average duration of the discussion in all groups were 1 h and 11 min, and the second author—fluent both in Cantonese and Putonghua as well as English—facilitated all the groups on-site at the university and used the preferred language of informants. Two pilot focus groups were conducted to refine the interview agenda. Data from these pilot groups were not used for analysis but only to adjust the interview questions in order to facilitate discussions relevant to the topic. In the four focus groups included in this project, the following prompts were used to facilitate conversations:

1. Please share with us your reason for attending university.
2. What did you take into consideration when deciding on entering higher education?
3. What does education mean to you in your future career plan?

Confidentiality and data treatment was verbally explained to the informants prior to obtaining their consent and proceeding with the discussions. Consent for audio recording the discussion and compiling the transcripts for analysis was obtained

from all informants freely and voluntarily. Informants were informed that the data analysis would be done independently by the research team and without the inspection of or access by the university, and they were assured that discussion in the focus groups would not jeopardise them in any way. We assigned pseudonyms for the verbatim representations below to protect informants' identity. After conclusion of the group discussions, all informants completed a demographic questionnaire. In addition to giving credit for the informants' participation, refreshment was provided to all groups during the discussion.

Data Analysis

English-translated transcripts were produced from the audio recording. Three independent collaborators (i.e. doctoral students in psychology), one proficient in Putonghua and English and two proficient in Cantonese and English, helped to check the credibility of the translated transcripts. Except for minor corrections to the English grammar and sentence structure, the collaborators agreed that the English texts were a trustworthy rendition of the original conversations. Given that one of the researchers was also the facilitator and fluent in all three languages (i.e. English, Putonghua and Cantonese), further checking was possible when the researchers disagreed during the analytic process and interpretation. Verbatim analysis was not required but effort was invested during translation to preserve the original meanings.

In the thematic analysis of the four focus groups, we followed Thomas' (2006) coding process and general inductive approach. The research team independently conducted the analysis to minimise subjectivity, increase trustworthiness and preserve inductivity of the findings (Farnsworth & Boon, 2010). After repeated discussion and based on consensus, themes emerged in accordance to the framework of three broad clusters: (1) guanxi or social networking, (2) normative reasons and (3) career prospects. The three clusters represent the perceptions and reasons for higher education amongst the youth in Macao who participated in this study.

Findings

In the present study, the focus group discussions evolved around the topic of how Macao youth valued higher education and their reasons for attending university. In the following section, the authors present the themes as these emerged from the discussions in four focus groups on the topic of the meaning of higher education for Macao youth. Guanxi, a form of social networking within Chinese communities, was considered an important gateway to a future career path, while reasons for attending university were mostly normative and complying with social and parental expectations. Career identity was briefly discussed in the groups considering the

relevance of higher education for future career opportunities. But first, we reflect upon the group dynamics and cultural values emerging from the focus groups.

The informants were of Chinese ethnicity and comprised of students enrolled for a bachelor's degree programme at a university in Macao. All informants have already entered the university and were in the second semester of the first year. In this regard, the conversations emerged from their already existing academic engagement, and they had to find reasons to support their decisions rather than critically challenging antecedent reasons and the meaning and value of higher education (Liem et al., 2012). We also observed an apparent reluctance to challenge another's viewpoint during the focus group conversations. Farnsworth and Boon (2010) claim that the group dynamics "shape the materials and findings that emerge from this form of qualitative inquiry" (p. 606). The reluctance of participants to fully engage in the conversation and express their own viewpoints appeared to be an artefact of the group context and the cultural values ingrained in Chinese youth from early childhood.

Seemingly striving for harmonious interpersonal relationships, they would not agree or disagree with the majority view lest being accused of starting an argument. This was more prevalent when group members were familiar with each other and in all the groups hindered meaningful group interactions. Whereas Barbour (2005) claimed that medical students in Hong Kong found it more conducive to participate in focus groups rather than complete questionnaires, in our study it seemed that the Chinese participants were silenced by the cultural values that precluded actively debating the topic under discussion, exploring different viewpoints and challenging other opinions. Socially oriented motives (Watkins & Hattie, 2012) seemed to predict their participation, and they seemed to passively search for the route of least resistance by agreeing rather than engaging. Nonetheless, three broad themes emerged for further exploration.

Guanxi or Social Networking

As with the group dynamics, socially oriented motives also seemed to be one of the prominent themes emerging from the focus group discussions. In all groups, the concept of *guanxi* seemed to dominate the conversations in all the focus groups. Guanxi forms the base of interpersonal relationships amongst Chinese people and the way in which people negotiate and seek information in the business environment (Chan, 2008; Chen, Friedman, Yu, Fang, & Lu, 2009; Huang, 2008; Tsui & Farh, 1997). Lee and Chew (2000) refer to Chinese guanxi as a family-based relationship orientation extended to friends, co-workers and other less familiar people. It is a form of social networking that describes social relationships and social goals involving the "social image and social worth that are garnered based on one's performance in an interpersonal context" (Mak, Chen, Lam, & Yium, 2009, p. 221). Guanxi also serves as a guide to the rituals for how individuals should act in any given context, and seemingly exerts much influence on how Chinese people gain access to the job environment.

In this study, participants attributed access to and success in the workplace as dependent on guanxi rather than on having or not having a degree certificate. When the groups discussed what would enhance their job prospects in the future, guanxi was considered of primary importance. People may have many friends but the most powerful use of guanxi depended on what kind of friends to whom one could get close (e.g. "If you, by chance, know someone who has high status, you've already been much more advantaged [in job prospects]"). The informants in all groups believed that they were *not lucky* knowing people in high places and had to follow the path of higher education to develop guanxi and ensure entrance into the workplace. Thus, they came to a university to extend their guanxi and gain capability through study. Some informants commented specifically on this, saying that guanxi was important in job-hunting.

Cherry: I think it's because … Macao is small. If you want to work in that company, if you know someone from that company, you can ask when they will have recruitment.

Yan: Many big companies will not post vacancies in the newspaper. You really need to [have guanxi] … the company I previously worked in asked me to introduce people ….

Sally: The introduced one will have priority. I mean the one I was working in previously also will ask you if you have anyone to introduce. Then if you write it down, they will recruit. I have a friend who didn't have [someone to introduce] and thus wasn't recruited. If you have an introduction, [the company] can ask what kind of person you are … there is a reference.

It seemed that guanxi and university life were more important than knowledge acquisition for informants in this study. They highlighted the opportunities to make friends from different fields in a relatively secure environment and explained that making friends in right places was similar to gaining work experience. Although a degree certificate would certainly help when they had insufficient work experience, guanxi was considered important, and university life allowed them both in terms of making friends in right places and gaining a degree certificate. Campus life became a shared topic amongst friends, and the participants in all groups agreed that attending university was not only for knowledge acquisition or qualification but primarily for making friends—that is, not only friends in high places (as for guanxi) but also friends for life.

Normative Reasons

Furthermore, most informants in this study commented that "it is normal" to come to university and agreed that they had never thought about not attending university. University life was seen as an inevitable stage of life, a "life that won't miss one episode". They perceived attending university directly following high school as a natural progression, and "going to university is a must after high school graduation

… everyone definitely think that going to university is normal. Not going to university is abnormal". Higher education was regarded as the norm and expected by parents and society. A female informant summarised her group's views as follows:

> I think attending university is a … it can be said as a compulsory life stage. That means, I have never thought about why I had to come to university, but … in this society, the majority of people will go to university. Therefore, I think I should follow that. That is, the society ethos … the parents won't tell you directly to go to university but the society teaches you that you have to go to university.

Apart from higher education being the norm for school leavers, parents exerted some influence on the informants' decision to attend university although most of them said that their parents did not intervene much with their choice of subject matter. Informants in all the groups stated that they had sensed their parents wanted them to attend university and that their parents implanted the idea explicitly or implicitly early in life. In a mixed male–female group, the following conversation evolved:

Peter: They will not say what is a must but they will talk about the advantages of that thing. They will nag me. I cannot win the battle so, most of the time, I just follow … I mean surrender.
Sharon: Nagging … sometimes they will.
John: Always do. It certainly will happen.
Sharon: When you feel annoyed, then you will think, "ok, fine".
Fiona: Actually, after I graduated from high school, I wanted to study Physics. However, my dad and my mom said to me, "don't study that … too tiring". They said "female isn't suitable to learn hard sciences". Then, then… I rethought that they might be right. Seemed too tiring … and actually, it is quite difficult. Finally, I gave up and then changed to Business.

Some informants commented in particular on the long-term influence their parents exerted on their thoughts of attending university, while others commented that they did not actively explore their parents' views before arriving at their decision to attend university. In a conversation between female informants on the topic of parental influence, the following evolved:

Belle: … because [my parents] didn't attend university … I see no value to reference them.
Katy: Everyone's parents are different. Actually, I like this subject … not fully complied with them.
Facilitator: What do you think about your parents… did you ask for their opinions?
Karen: Yes… it's because [my parents'] experience is richer than mine, in terms of future, work. Although they didn't attend university … although they don't understand what I study at university … according to their experience, I would see if they have any ideas.

As indicated above, participants in this study were already in the second semester of their first year at the time of the focus group interviews. On one hand they saw the decision for higher education as normative and part of their current life phase. On

the other hand, they seemed to comply with their parents' wishes and expectations for further study even though they had some autonomy in the choice of major. Emphasising the normative reasons and parental expectations, the informants saw their reasons for higher education as complying to social goals for engaging in activities that most people do and that studying at university would assist them becoming part of the group with whom they wanted to be identified (King, McInerney, & Watkins, 2010; Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005).

Career Prospects

In the discussion pertaining motivation for higher education, almost all the informants spontaneously mentioned that finding a *good job* was a reason for attending university. Higher education had a more practical and extrinsic meaning for the participants. In this regard, they defined a good job as one that should offer good social welfare and a satisfactory salary, even if the salary was not as lucrative as what could be earned in the gaming industry. Rather, a good job had to do with the nature of the job (e.g. office work and regular hours) and should offer good promotion prospects. In one group, informants also mentioned that a good job should offer them enough income to take care of their family (i.e. both their current family and their future family). This group also discussed jobs requiring night shift work (e.g. in the gaming industry) and commented that shift work could harm their health even if the salary was good. Others, however, focused on the salary and welfare. One participant described a good job as one where he "…can afford to buy an iPhone" eliciting a great deal of laughter from the rest of the group. Continuing this more materialistic value, the participant added that a good job should at least allow him to buy a flat. Another group added that a good job is one that would offer them a salary that could sustain their spending habits. Given that most of the informants in this study were from the business area, their reasons for higher education might have been more business orientated with an emphasis on the material benefits rather than other more subjective and social-cultural concerns. Almost all informants from the business area of study highlighted "high salary, good welfare", and this could be different for those who did not have an interest in business.

Although the informants claimed they considered personal interest when choosing a field of study, they also conversed about how university life could open doors to a future career identity and multiple job opportunities. Despite agreeing that a position in government was a "good job" offering future security in the job market, they also considered majoring in business studies (e.g. hospitality industry, accounting, management and so on) as broadening one's employability after graduation. A female student commented: "I think there is no necessity to study specifically for entering government department. Maybe graduating with a degree of hospitality, I can still have the chance to take exams for government jobs. But if I graduate with the degree of public administration, I only know about the stuff in that area. Then, [I] won't have other options". Local students also questioned the stability of the

gaming industry commenting on the notion that the industry largely relied on the world's economy, which, in their opinion, was rather fragile. Therefore, given the preference for stability and security in the job market, informants felt the need to be flexible and to prepare for different kinds of jobs or upgrading their qualifications at some point in future.

For the most part, higher education was perceived as a means to gain greater stability in a future career. King et al., (2010) suggested that social goals are amongst the many aspects taken into consideration in people's cognitive evaluation before performing behaviours. Two individuals may both be motivated for higher education but their pursuit of further study could differ because of their desired goals and the meanings attached to knowledge acquisition. In the present study, it seemed that conforming to the social standard, peer group and/or parental expectations motivated Macao youth to pursue a bachelor's degree.

Discussion

Attending university for the youth participating in this study was for the most part perceived as normative and as an opportunity to gain interpersonal skills and expand their social networks. The degree certificate was an added bonus. They did not necessarily see value in the knowledge but rather valued the opportunity to enhance their interpersonal skills and build guanxi. Being rather pragmatic and perceiving work experiences as critical for job-hunting and/or preferment, university life was seen as an important opportunity to establish guanxi and to improve one's competitiveness in the labour market (Brennan, 2008; Brynin, 2012; Chan, 2008; Holmes, 2013; Huang, 2008). Indeed, as explained above, many available jobs in Macao do not necessarily require tertiary education. Consequently, the informants placed less emphasis on the knowledge component of higher education and focused more on the practical skills they could acquire at university.

The value attached to graduating from a bachelor's degree and the reasons of higher education varied across informants in the present study and were in part shaped by the socio-economic context of Macao. Desiring stable career prospects and a secure future somehow directed the youth of Macao to further their education (Lee, Kang, & Yum, 2005). In Macao, the economy across many sectors has greatly prospered over the past decade and the low unemployment rate increased the likelihood that secondary school graduates' could spend a few more years in higher education because there was no financial demand for early employment. Given that there is no certainty of the long-term security in gaming and tourism industry, the informants in this study considered a bachelor's degree as giving them a competitive advantage in the future and served as motivation for higher education.

The motivation for higher education was furthermore embedded in the opportunities granted to try out different roles and further their social goals of belonging to the "right" groups for succeeding in the labour market. Seeing that attending higher

education was considered a normal stage of life revealed a normative-oriented processing style in their identity development (Berzonsky, 2004). Being in the stage of emerging adulthood, university life also offered them a period to explore potential career identities. For the most part, the informants in this study were still unclear about their future career paths and could be considered in the moratorium stage of their career identity commitment (Adams, Berzonsky, & Keating, 2006). They valued engaging in "campus life" where they could explore different career prospects, extend their social networks and learn how to interact with different people. Thus, it seemed that social goals and the adaptive patterns of an interdependent self (Watkins & Hattie, 2012) were important reasons for the Macao youth to engage in higher education.

The present study revealed some limitations and areas for further study. The recruitment of participants and the fact that informants were all first year university students who have already acted upon the decision to enter higher education could have biased their views and perceptions. The tendency of Chinese youth in Macao to avoid conflict and challenge the viewpoints of others further limited the extent to which informants could freely express their views on the topic of discussion. They also might have expressed views they thought the researchers wanted to hear and to leave a good impression. The youth who participated in this study did not really critically reflect on their reasons for higher education, and the group dynamics indicated limited active engagement and conversational exploration of the topic under investigation. This limited, to some extent, the quality of our analysis and interpretations (Farnsworth & Boon, 2010). We therefore suggest that future studies should employ more diverse qualitative methods to discover the subjective meanings attached to the motivation for higher education in Macao. Future research should also involve youth who have not entered university and chose early employment, as well as explore the reasons for higher education amongst final year secondary school students. Secondary school students are in an important phase of deciding whether or not to enter university, while those already in the workforce could expand on why they decided against higher education. Including informants from a broad spectrum of majors at university could also explore the role of social goals as motivation for higher education.

Conclusion

The current study provided some preliminary ideas of how the youth in Macao viewed tertiary education and what they expected to gain from university life. Three broad themes emerged representing the potential reasons why the youth who participated in this study decided to engage in higher education. Interpersonal skills and social networking (or guanxi) seemed to be the core intention for attending university amongst the youth who participated in this study. Together with seeing campus life as part of their life phase (normative reasons and socially expected), Macao

youth were seemingly motivated by an interdependent self and the social goal of belongingness and the aim to build close, personal and fun relationships with others who could open the doors for future achievement in the job market (Hofer & Peetsma, 2005; Watkins & Hattie, 2012). We tend to agree with King and Watkins (2012) that social goals and social-cultural values, including guanxi, and complying with parental expectations need to be examined more carefully to explore the ways in which these goals motivate Chinese students in Macao for higher education in the face of socio-economic factors that could entice some towards early employment and easy money that are available in the gaming and hospitality industries.

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Chapter 6
Filipino Students' Reasons for Not Being Motivated in School: Insights into Their Implicit Beliefs About Motivation and Learning

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Abstract Motivation is an important multidimensional construct that is consistently associated with achievement in school, but few theories conceptualize students' lack of motivation as an explicit dimension of motivation. The purpose of the study was to explore Filipino students' reasons for not being motivated in school, and we explored these reasons by gathering open-ended questionnaire data from samples of Filipino students from the secondary and tertiary levels. Data from 405 high school students and 305 college/university students revealed core themes of reasons for not being motivated: beliefs and attitudes about the self and the subject, perceptions of the teacher's competencies, and distractions afforded by social support systems. The findings are discussed in the context of current explicit theories on amotivation, but in addition, themes that are divergent with these explicit theories are discussed in the context of Filipino and Asian students' implicit beliefs about motivation and learning in schools.

The important role of motivation has been well accounted for in the educational psychology literature and even in the relevant literature on the motivation of Asian learners. But there have been relatively few studies that explore the constructs and processes that would explain why students are not motivated. Yet unmotivated students often show negative outcomes related to adjustment, perceived stress, and general well-being in contrast to intrinsically motivated individuals who exhibited lower perceived stress scores when they are studying (Baker, 2004). As what might be expected, theories and concepts of academic and achievement motivation serve as starting points for studying the lack of motivation in schools. For example, Ryan

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and Deci (2000) conceptualized different types of motivations as varying in their levels of self-determination (from extrinsic to intrinsic motivations) and differentiated *amotivation* as the absence of any motivation. But this specific theoretical conceptualization of amotivation may not capture all experiences of learners who are not motivated, as they may be ways of conceptualizing motivation and the absence of it other than from the theoretical lens of self-determination. In this chapter, we explore Filipino students' reasons for lack of motivation to learn in schools and discern how these reasons reflect implicit beliefs about the nature of motivation and learning in schools.

Conceptualizing Lack of Motivation

Most recent psychological theorizing about motivation in schools conceptualizes motivation as being multidimensional (e.g., Harackiewicz & Linnenbrink, 2005; McInerney & Liem;, 2009; Ryan & Deci, 2000). As such, it is not often that psychological theories of motivation explicitly conceptualize the lack of motivation; instead, the focus has been on identifying which type of motivation leads to better learning processes and outcomes. In other words, students are not viewed as lacking in motivation; instead, they are seen as having motivations that are less likely to lead to high achievement. Restating it bluntly, all students are motivated, including those who appear indifferent or disengaged, but they are most likely motivated for the wrong reasons.

One of the few theories that explicitly conceptualize the lack of motivation as distinct motivational dimension refers to the concept of *amotivation*. Ryan and Deci (2000) characterize individuals who are amotivated as being passive and indifferent; they exhibit a lack of autonomy and initiative in carrying out the necessary courses of action to attain an outcome. Specifically, these individuals are unable to establish and understand the causal links between the behaviors they manifest and the consequences of these behaviors. Amotivated individuals do not see the value in the activity and lack the self-efficacy to see it through its completion. These individuals have not internalized the motives and lack the ability to regulate their behaviors so as to achieve the desired outcomes. In this regard, learning tasks that do not lend opportunities for autonomous and controlled motivation are said to lead to amotivation (Ratelle, Guay, Vallerand, Larose, & Senecal, 2007).

There are empirical studies that focused on the consequences of amotivation and on the factors that contribute to student amotivation. Studies report the negative relationship between amotivation and task persistence (Vallerand & Bissonnette, 1992) and how amotivation contributes to dropping out in high school (Vallerand, Fortier, & Guay, 1997). Legault, Demers-Green, and Pelletier (2006) identified four main reasons for why students experience amotivation in the academic domain. These four reasons involve the individual's beliefs about abilities and expectancies necessary in carrying out the task (ability beliefs), beliefs related to the capability to invest effort required by the task, the value the individual placed on the task, and characteristics of the task that incite the individual's involvement. Their model

emphasizes the social-cognitive dimensions of amotivation; consistent with many theories of motivation, theoretical primacy is given to value appraisals and beliefs about the relationship between ability, effort, and outcomes as these cognitive constructions influence how an individual decides to act in relation to particular tasks and task goals (Ryan & Deci, 2000).

Although conceptualizing the lack of motivation as *amotivation* has significant value, there may be other ways of understanding the lack of motivation and students' reasons for not being motivated in school. In particular, the values and beliefs that relate to motivational processes are also socioculturally rooted (Maehr, 1974; McInerney & Liem, 2009). Most of the research that emphasize the sociocultural nature of student motivation also emphasized interpersonal factors in students' construction of their motivations in school (McInerney, Dowson, & Yeung, 2005; Van Etten, Pressley, McInerney, & Liem, 2008), which are also likely to be strongly influenced by cultural knowledge, norms, and practices (Bernardo & Liem, 2013; King & McInerney, 2014; King & Watkins, 2013; Maehr, 1974; McInerney & Liem, 2009; Zusho & Clayton, 2011).

With the foregoing perspective, we propose that learners' reasons for not being motivated in school go beyond personal beliefs and construals and are likely to refer to factors and processes within the interpersonal social environments within the school and within relevant social and cultural processes in the larger community in which the school belongs.

Social Dimensions of Filipino Learners' Motivation

How might Filipino cultural knowledge and practices influence Filipino students' reasons for not being motivated? We should first note that numerous studies have actually demonstrated how Western motivational theories and constructs have been shown to work in similar ways in Filipino student samples (Bernardo, 2003; Dela Rosa & Bernardo, 2013; Liem, Martin, Nair, Bernardo, & Prasetya, 2009). But some significant trends can be observed from previous studies that suggest how facets of the collectivistic culture of Filipinos might highlight the social dimensions of achievement and learning motivation in the experience of Filipino student, in the same way as with other collectivistic Asian cultures (Hau & Ho, 2008; King & Watkins, 2012). Quantitative (Bernardo, 2003; 2008) and qualitative studies (Bernardo, Salanga, & Aguas, 2008; Liem, Nair, Bernardo, & Prasetya, 2008) have pointed to the importance of parental expectation, family roles, and norms in the construction and experience of learning motivation. Peer-related social perceptions are also related to achievement goals of Filipino student (Bernardo & Ismail, 2010), and particular social goals in the learning environment actually influence specific learning motivational dimensions (Bernardo & Ouano, 2013; King, McInerney, & Watkins, 2012, 2013). Research in other collectivist Asian cultures suggests that these trends may not be unique to the Philippines (King, McInerney, & Watkins, 2010; Liem et al., 2008), so we do not make claims of cultural uniqueness regarding these particularly cultural influences.

In this current study, we propose that Filipino students' reasons for not being motivated would also reveal these social interpersonal processes that refer to family and peers and might also modify the implied psychological mechanisms that lead to student amotivation. As our intention is to uncover these social interpersonal dimensions of Filipino students' conceptions of amotivation, we chose to inquire into the conceptions broadly without structuring or probing the thought processes of the participants of the study. In this spirit, we sample a diverse group of students to share their conceptions in our survey. We aim to disclose as many conceptions as possible related to the reasons for not being motivated in school without determining which are the more dominant conceptions or how these concepts are causally related. However, we note that the conceptions of the Filipino students in the study might indicate implicit assumptions about the nature of motivation in learning. We expect that our research would also indicate conceptions that are aligned with the conceptions of amotivation articulated in theoretical work on amotivation drawn from studies with Western student samples (Legault et al., 2006), but we did not explicitly use the conceptual categories in those theoretical models in analyzing our data. Our analysis aims to reveal the range of conceptions, to identify similarities with the Western conceptions in explicit theories of amotivation, and to uncover cultural influences (if any) through the reasons for not being motivated that differ from those in the explicit theories of amotivation.

Method

Participants

Seven hundred ten students (380 male, 330 female) from high schools ($N = 405$) and colleges/universities ($N = 305$) participated in the study. Participants' ages were from 11 to 21 years ($M = 16.11$, $SD = 2.35$). Participants originated from 86 different cities/towns but were enrolled in seven high schools and five colleges/universities located in eight cities in different parts of the country (five cities in Luzon, one in the Visayas, and two in Mindanao). The sample represented a diverse group of students from different socioeconomic backgrounds and school environments.

Instruments and Procedure

Participants completed an open-ended questionnaire consisting of questions that required short written responses. For the present study, the relevant question asked the students to identify reasons why a student like them may not be motivated to learn in school. They were asked to provide examples whenever possible. The instructions were presented in English and Filipino, but the students were told to

answer in whatever language they felt most comfortable. Most students wrote their answers in English, and a significant number wrote their answers using major Philippine languages: Filipino (Tagalog), Ilonggo, and Cebuano. Many students also wrote answered using code-mixing (i.e., mixing Filipino and English, Filipino and Cebuano, etc.). All responses written using Philippine languages were translated into English by a native speaker of the language.

Data Analysis

Thematic analysis involved the work of two coders, with the first author serving as one of the coders and a graduate student serving as the other coder. Both coders have experience working with qualitative data in psychology and education research. Thematic analysis of the various responses involved two phases. The first phase involved marking words or phrases that represented direct responses to the questions. Words or phrases that were synonymous and/or had the same semantic content were grouped together into core ideas. The second phase involved classifying the core ideas into more abstract categories. Consensus was achieved through discussions, so this ensured complete agreement on how each response was coded and later categorized. The original dimensions or categories of amotivation defined in the extant literature (Legault et al., 2006) were not explicitly referred to in either phases of the thematic analysis.

Results

Table 6.1 summarizes the core ideas and categories of the various reasons for not being motivated in schools and indicates that the attributions for unmotivated academic performance or academic amotivation refer to factors both internal and external to the self.

Internal Factors

The internal factors refer to a range of reasons that relate to the self; these were not primarily personality variables, but included self-related beliefs, attitudes, and physical well-being. A typical response in this category referred to the students' negative attitudes and feelings associated with school, the subject/class they were taking, or the school activities. Two types of self-related beliefs were also typically mentioned in the students' responses: beliefs they had about their own abilities and beliefs about their own interests, goals, and aspirations related to learning in school, as shown in the following response:

Table 6.1 Categories of factors that contribute to unmotivated academic performance

Categories	Core ideas
Self-related	General negative attitude and affectivity
	Psychological problems
	Motivational goals and beliefs
	Physiological ailments
	Ability-related beliefs
Significant others	Family-related problems
	Distractions afforded by peer relations
	Peer-related problems
	Perceived deficiencies in social support
Subject or course related	Dislikes and is not interested in subject or course
	Questions practical function of subject or course
Teacher related	Dislikes instructional methods of the teacher
	Perceives that the teacher lacks teaching skills
	Finds the teacher strict
	Dislikes the teacher
Physical environment	Distractions afforded by the physical environment
	Audio-visual entertainment
	Communication devices
	Excessive workload
Financial	Financial stability
	Financial constraints

> Students like me sometimes don't seem motivated to learn or don't want to learn because there are times that we just want to do enjoyable things. We don't want to deal with problem and choose to do only the things we want. We choose to do whatever is easy, and we become lazy when tasks get difficult. But not everything is easy when learning; how will you learn if you take on the difficult tasks. (Translated response of 20-year-old male student)

Other responses actually referred to some physiological and psychological problems being experienced by the students. Students refer to physiological ailments or difficulties (sleepiness, fatigue, hunger) that affect their ability to concentrate on their school-related activities. Psychological problems mainly refer to the experience of stress as shown in the following response:

> There are times when I am not motivated to learn because of the problems that are happening around me. For example, when my mother scolds me about a little problem or misbehavior I did, I would not study and just sleep. (21-year-old male student)

Aside from these attributions related to the self, there was a wider range of responses that referred to factors in the student's external social and physical environment. We discuss these in the following subsections.

Significant Others

The students mentioned family-related concerns as factors that make them less motivated in schools. These problems draw their attention and other resources away from school-related activities. Students' friends and peers are also mentioned as factors that draw their attention from such activities. Friends are sometimes mentioned as "distractions" they draw the student to more enjoyable activities compared to school work, as indicated in the following responses:

> Students might be experiencing problems at home, or no one is providing them guidance. There might be family problems. (17-year-old female student)
>
> Sometimes, some students are not motivated because there are many matters that preoccupy their minds … like family problems. But usually it's their boyfriends/girlfriends. Maybe they don't know how to handle their relationships and stresses; even small problems make them feel like their worlds are crumbling, so even their studies are affected. (Translated response of 20-year-old male student)

The students also made general references to a general lack of support from the social environment for their school-related activities:

> Some students may not get the support and guidance from their parent, so they lose interest in studying. (Translated response of 20-year-old male student)

Subject and Course

Students also referred to factors related to specific classes or subjects they were particularly unmotivated in; the college or university students also factors related to their course or major area of study as relevant factors. Some responses referred to the students' general dislike or lack of interest in a specific class or the course they were studying. A more specific example of such responses related to the perceived lack of any practical use or function of the content or coverage of the subject or course they were studying is shown in the following responses:

> We don't seem motivated to things that we already know. There are also some topics that we rather not pay attention to and use our time to what we believe is more important. Learning should be happy. And sometimes it's not in our interest the things they want us to learn. Honestly we are willing to learn, only if learning things come to be reasonable. We want to know the reason! And you should be reasonable too…. (20-year-old male student)
>
> There are times when the subjects get boring. Sometimes, the lessons become exaggeratedly difficult to understand that we wonder what the purpose of the lesson is for. (16-year-old female student)
>
> Maybe some students are not motivated to learn because … they don't like the field they are studying like they want to be a nurse but they were forced to take up (teacher) education. (21-year-old male student)

The Teacher and Teaching

Distinct from the subject-related factors, students also mentioned factors related to the teacher or the mode of instruction. Students mentioned cases when they found teachers' instructional methods to be boring and/or ineffective. But some responses specifically attribute their lack of motivation to their teachers' lack of teaching skills. Sometimes, it is the teachers' strictness in the classroom and in the class requirements that are mentioned as the factors that lead the students to be unmotivated. The following responses illustrate this factor:

> Sometimes those students have no interest to learn because some teachers make them sleepy, and they sometimes spend all the time just scolding the students. (13-year-old male student)
>
> Because sometimes there are teachers who are not good enough in delivering the topics, ideas, and information. (18-year-old male student)

We also noted responses that described a general dislike for the teacher as the factor that contributes to the students' amotivation. These responses do not refer to specific negative perceptions of the teacher's methods or abilities; instead they just describe a general negative attitude toward the teacher.

Physical Environment

Students also mentioned factors in their physical environment that cause them to be distracted from their school-related activities. These factors include general events in their immediate environment and also the less-than-ideal physical state of their learning environments. The presence of various forms of popular entertainment in television, movies, radio, other audio-visual forms, and also handheld communications devices, most typically mobile phones, was often mentioned as distractions in the physical environment that draw the students' attention away from school:

> … Sometimes all I want to do is watch TV…. (17-year-old male student)
>
> Some students seem not to be motivated in learning because of technology today with the different kinds of mechanical gadgets, iPods, cell phones … they lose their concentration…. (14-year-old male student)

Still in the category of the external physical environment, some college/university students who work part time mentioned their work responsibilities as factors that lower their motivation in school. But more generally, students refer to excessive workload in school as a factor that negatively affects their motivation. Students mention their numerous academic tasks and the difficulties they have in prioritizing which one has to be attended to:

> Sometimes we are already tired and when we go home, there are lots of assignments that we have to do! Sometimes teachers don't understand students. As if they never went to high school…. (13-year-old male student)

Financial Well-Being

The last category of factors mentioned by the students referred to their financial well-being. Interestingly, this factor seems to work both positively and negatively. Some mentioned that the lack of adequate financial resources to pay for educational expenses contributes to amotivation, but others mentioned that financial stability of the parents makes some students complacent and unmotivated to work hard in school.

> Maybe some students are not motivated to learn because they lack financial stability….
> (21-year-old male student)
>
>   For example, you are the daughter of a big time businessman … you might not feel the need to study hard because you think that you already have a lot of money and can do and buy whatever you want. So for them, what is the point of studying? (20-year-old female student)

The latter set of responses allude to the instrumental value of education in the Philippines, with education being viewed as increasing the chances for gaining better occupational opportunities and economic mobility. Those who come from privileged backgrounds were seen as complacent because they already have financial stability via their parents' monetary resources.

Discussion

This study was conducted to explore the aspects of Filipino students' reasons for not being motivated in school by inquiring into the experiences of a diverse range of Filipino learners. The reasons could reveal implicit beliefs related to the nature of motivation and learning in schools. Thus, we discuss the results with reference to the dimensions of student amotivation described in the explicit theory of Legault and colleagues (2006) drawn from the experience of Western students, but also highlight what might be dimensions of reasons for not being motivated that are drawn from specific sociocultural experiences of Filipino students.

First, we note that similar to Legault and colleagues (2006), the Filipino students in our study also referred to constructions of ability beliefs and effort beliefs as factors related to their amotivation. Thus, we found affirmation of the notion that amotivation stems from cognitions that are related to characteristics, attitudes, and beliefs of the student as a learner. But our data further indicate that Filipino students also refer to psychological and physiological problems that they experience as factors that affect their lack of motivation. These factors relate to the individual's experience, but are not purely cognitive (unlike those in Legault et al.'s model). The students' responses do not clearly indicate whether these psychological and physiological factors are direct or indirect causes of their amotivation, but their association with the more cognitive self-related factors seems to be significant. This finding suggests that the personal experiences of the Filipino learners that affect their

motivation may be constructed in a more holistic manner, which requires going beyond cognitive or social-cognitive constructions of motivation or the lack of it. The findings seem to echo a previous finding in a similar qualitative study, where Filipino students who were asked to describe the emotions they felt while studying and learning mentioned physiological states like being tired and sleepy (Bernardo, Ouano, & Salanga, 2009). Our data also suggest that in relation to the lack of motivation, Filipino students' self-related attributions may involve self-related concepts that weave together the cognitive, affective, physiological, and other psychological experiences of the students.

In constructing Filipino students' lack of motivation, a multifaceted framework is best utilized, one that takes into account proximal and distal determinants of action or the lack thereof (King & McInerney, 2014). Specifically, in Asian contexts such as the Philippines, the lack of motivation cannot be accounted for by cognitive factors alone as these cognitive factors would likely be influenced by the constraints or affordances of the physical or social space.

The model of Legault et al. (2006) focuses mainly on the cognitive/social-cognitive factor-related amotivation, but also proposes the important role of interpersonal factors. Relationships with teachers, parents, and friends are part of the social support network of student, with teachers providing competent support and parents and friends supporting relatedness needs. Our findings found support for these assumptions, particularly as the Filipino students refer to various factors related to their significant others. However, the responses of our sample reveal a different construction of the role of significant others in their lack of motivation. The results reveal that the role of significant others is not just about providing opportunities for autonomous decision-making and task completion, a feedback system that allows for feelings of competence and mastery to develop, and the development of enriching relationships with key social figures. Indeed, this conceptualization is consistent with previous findings that show how Filipino learners affirm the legitimacy of parental involvement in their academic experiences and decisions (Bernardo, 2010, 2012). This particular role of significant others, the parent in particular, seems to be implicitly but negatively articulated in the responses that refer to the lack of social support from family and peers. Similarly, the expressed role of negative perceptions of the teacher in the students' reasons for not being motivated seems to implicitly but negatively articulate the supportive role of teachers for the students' competence perceptions.

But for the Filipino students, problems they experiences with significant others (family and peers) serve as distractions that draw their attention and effort away from school-related matters. In a sense, such attributions of not being motivated may be seen as an extreme case of lack of social support and as such are consistent with theories of motivation that distinguish between positive and negative dimensions of parental influence as facilitating conditions for student learning motivation (McInerney et al., 2005), which have been validated with Filipino students (Bernardo, Ganotice, & King, 2014; Ganotice, Bernardo, & King, 2013). In addition, however, we believe that the students' responses reflect the cultural reality that in the lives of many Filipino students schooling is closely connected with family

and social experiences, which is reflected in Filipino students' motivations for learning (Bernardo, 2004; Bernardo et al., 2008). But in more adverse circumstances, schooling actually competes with other more basic family and social responsibilities and concerns; in such competitions, schooling is the choice that is compromised.

Our results provide interesting extensions of the concept of facilitating conditions (McInerney, Dowson, & Yeung, 2005), as we also found reports of references to factors in the external physical environment as being adverse to the students' being motivated in schools. The facilitating conditions for student motivation have also been conceptualized primarily in social-cognitive terms, but our results suggest that there may be cases when the physical environment for learning may be non-facilitative conditions for student motivation because of the presence of many potential distracters.

The Filipino students' reference to financial well-being as a factor in their reasons for not being motivated can be seen as a specific case of the earlier point we made about the connection between schooling and the students' total family and social experiences. Previous studies indicate that Filipino students see learning in school as being related to their aspirations of a better financial life for themselves and their families (Bernardo et al., 2008), but they are also uncertain as to whether success in school would deliver these expected rewards (Bernardo, 2003). In this regard, we can understand why concerns related to financial stability and resources may affect the students' lack of motivation in school or why the relative financial comfort of other students might lead them to value the experience of schooling less. The finding also suggests that learning and being motivated to learn (or the lack thereof) is a social enterprise, one that invokes the role of family and is subject to the influence of social forces. Learning in the Filipino context invokes the social connections that would benefit from occupational success afforded by educational opportunities or the distractions presented by familial conflicts.

If we focus on the results that refer to more academic reasons for not being motivated, our results provide support for Legault and colleagues' (2006) framework. In particular, our results showing the subject- or course-related factors in amotivation are similar to the dimensions of value placed on task and characteristics of the task. We should note, however, that our data revealed more global or general expressions of these factors (i.e., referring more to their difficulties in the subject or course or their dislike for it) compared to those explicitly defined previously (Legault et al., 2006).

We note an important trend in how the students wrote about their reasons for not being motivated that may suggest a different psychological mechanism leading to Filipino students' motivation (or lack of it) in schools. Quite often, students refer to factors (problems with significant others, other activities in the social and physical environment, etc.) that *distract* them from school or that draw their focus and efforts away from school work. This process of being drawn away from school activities may be interpreted as a form of disengagement that may be premised on some cognitive appraisal that the distractions are more valuable or important than school. Such an interpretation may be consistent with the basic theoretical assumptions of

Legault et al.'s (2006) model. But we could also propose a modification of the model that involves a sociocultural embedding of the learning-related social-cognitive processes within a social environment where children and adolescents are also required to actively engage tasks, roles, and responsibilities in other social domains (i.e., family, peers, and romantic relationships, among others). As the responses of our Filipino participants suggest, the appraisal of value, abilities, and outcome expectations is most likely reckoned with reference to values, abilities, and outcome expectations in other social domains, as well. In the case of some Filipino students (and possible other students in collectivist Asian cultures), the responsibilities and roles relative to significant others might actually carry more weight in the appraisal processes, making lack of motivation in school a more likely outcome. In the Philippines and in other collectivist countries, the self is embedded in social relationships and is more sensitive to context. With this construction of the self, features and processes in social institutions such as schools are subject to be different from their more Western (or individualist) counterparts (Markus & Kitayama, 2010).

The preceding discussion is an interpretation that seeks to modify the explicit models of amotivation by connecting the psychological processing with the students' other tasks and responsibilities in other social domains. This proposal to connect the motivational processes across social domains points to theoretical spaces were cultural processes may shape specific reasons for not being motivated. Social norms and practices in Filipino culture might have actually influenced the reasons for not being motivated that relate to the social interpersonal factors leading to the reasons articulated by our respondents. Unfortunately, our qualitative study cannot directly verify the interpretations we posed in this discussion. The limitations in our research approach and in the depth of our data prevent more conclusive statements. Future studies that involve more direct quantitative measures of the relevant beliefs and value appraisals, among others, can test these interpretations as expressed in process models that incorporate social domains and arrangements relevant in the Filipino cultural context. Or qualitative studies that utilize more in-depth and longitudinal inquiries might be able to reveal the intricacies in the social-cognitive processes that we suggest in our discussion.

But the limitations of our research approach notwithstanding, we believe that our broad inquiry indicates how culture-specific conceptions of motivation (and the lack of it) could validate universal aspects of explicit theories of amotivation while pointing to modified conceptions that probably relate to sociocultural norms and processes. Our findings confirmed some of the key components of Legault and colleagues' (2006) model of academic amotivation. Specifically, the self-related, significant others, and subject- or course-related factors correspond with those in Legault and colleagues' model, but our Filipino students also pointed to other dimensions of the reasons for not being motivated that seem to involve an interplay of factors that are internal and external to the learner that may be meaningful in the specific sociocultural context of Filipino learners. In this broad inquiry, we hope to have taken a small but important step toward developing a more culturally nuanced understanding of what causes Filipino students not to be motivated in school.

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Part III
Self-Related Processes

Chapter 7
Testing the Internal and External Frames of Reference for Academic Self-Concept Among Chinese Vocational Students

Lan Yang, A. Katrin Arens, Man Kate Xu, and Kuen Fung Sin

Abstract Based on a sample of Year 1 vocational students ($N = 962$) in China, the study presented in this chapter aimed to (1) test the generalizability of the classic internal/external (I/E) frame of reference model of academic self-concept (Marsh, 1986) to vocational students and (2) extend the classic I/E model by incorporating recent developments of the twofold multidimensional structure of academic self-concept (i.e., its domain-specific structure and a further separation between competence-affect components within each domain). Structural equation modeling analyses for testing the I/E model show that paths from math and Chinese achievements to corresponding domains of self-concept were positive and significant, whereas cross-paths to nonmatching self-concept domains were negatively significant. A further analysis by separating competence and affect components within math and Chinese self-concepts reveals that paths from math and Chinese achievements to matching affect components were stronger than those to competence components. This interesting finding is discussed in light of the Chinese cultural model of learning. Implications of our findings for the I/E model, self-concept research, and practice are also discussed.

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Introduction

Self-concept defined as a person's perceptions of the self was regarded as a hierarchical and multidimensional construct (Shavelson, Hubner, & Stanton, 1976), in which global self-concept was posited at the apex of a self-concept hierarchy which was then further divided into two facets: academic and nonacademic self-concepts. Historically, academic self-concept, defined as students' self-perceptions in school domains, was conceptualized as a unidimensional higher-order construct that encompasses self-concepts related to math and verbal domains (Marsh, 1986; Shavelson et al., 1976). Contrary to this assumption, math and verbal self-concepts were found to be very weakly correlated or to even bear no correlation at all, although math and verbal achievements were found to be substantially correlated (Marsh & Craven, 1997; Marsh & Shavelson, 1985). This indicates that academic self-concept is a domain-specific construct consisting of separate math and verbal self-concept facets. This property of academic self-concept led to the development of the internal/external (I/E) frames of reference model (Marsh, 1986; Marsh & Hau, 2004; Möller, Retelsdorf, Köller, & Marsh, 2011). The I/E model offers a theoretical explanation for the strong distinction between math and verbal self-concepts and also explicates the relations between math and verbal self-concept and achievement measures.

The I/E Model

According to the I/E model (Marsh, 1986), the formation of academic self-concept in a particular school subject includes an external (social) comparison process as students compare their self-perceived performances in one school subject with the perceived performances of other students in the same school subject. For example, the higher the math achievement one student has in relation to other students, the more likely the student will perceive him/herself to be good at math, leading to a high math academic self-concept. In an additional internal (dimensional) comparison process (Marsh, 1986; Pohlmann & Möller, 2009), students compare their own performances in one school subject with their performances in other school subjects. For instance, an individual student contrasts his/her accomplishments in math with his/her verbal accomplishments. While the external comparison process leads to positive correlations between self-concepts and achievements in matching domains (e.g., math self-concept and math achievement), the internal comparison process results into negative correlations between self-concept and achievement in
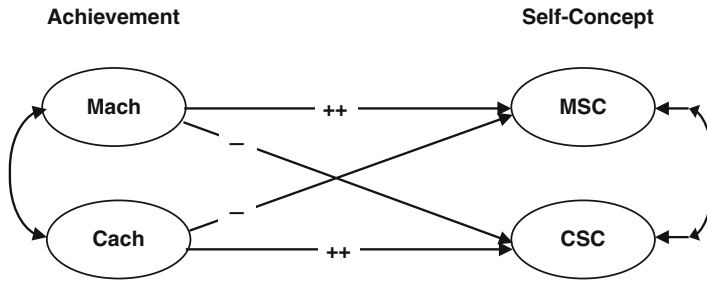
Fig. 7.1 The classic I/E model predictions based on math and verbal domains (Based on Marsh, 1986). *Note*: The *horizontal lines* represent substantially positive effects from achievements to matching domains of self-concepts (++). The *cross-paths* represent statistically less substantial and negative effects from achievements to nonmatching domains of self-concepts (−). *C* Chinese, *M* math, *ACH* achievement, *SC* self-concept

nonmatching domains of academic self-concept (e.g., math self-concept and verbal achievement). The effects of the two comparison processes balance each other resulting in the low or even negative correlation between math and verbal self-concepts indicating the often-found separation between math and verbal self-concepts (see Fig. 7.1).

Up to date, there is substantial empirical support for the I/E model in both cross-sectional and longitudinal settings (Köller, Klemmert, Möller, & Baumert, 1999; Marsh, Byrne, & Shavelson, 1988; Marsh & Koller, 2004; Marsh, Kong, & Hau, 2001; Marsh et al., 2014; Marsh, Xu, & Martin, 2012; Marsh & Yeung, 1998; Möller & Köller, 2001; Möller et al., 2011). The I/E model has been found to be generalizable across students' ability levels (Möller, Streblow, & Pohlmann, 2009; Mui, Yeung, Low, & Jin, 2000; Plucker & Stocking, 2001), gender (Marsh & Yeung, 1998), age (Marsh, 1986; Tay, Licht, & Tate, 1995), self-concept, and achievement measures (Marsh et al., 2001; Xu et al., 2013) and has also been confirmed in experimental designs (Möller & Köller, 2001; Pohlmann & Möller, 2009). Substantive support for the I/E model further comes from an extensive meta-analysis (Möller, Pohlmann, Köller, & Marsh, 2009) based on 69 data sets ($n = 125,308$). Controlling for the effect of verbal achievement to verbal self-concept (.49) and math achievement to math self-concept (.61), verbal achievement negatively predicted math self-concept (−.27), and math achievement negatively predicted verbal self-concept (−.21). This pattern found in Möller et al.'s (2009) meta-analytic study is consistent with the predictions of the I/E model (Marsh, 1986).

Marsh and Hau (2004) provided evidence of the cross-cultural validity of the I/E model for math and reading self-concepts and achievements across 26 cultural diverse countries based on the Programme for International Student Assessment (PISA) study. More recently, Xu et al. (2013) expanded the I/E model by evaluating it in relation to two verbal domains (Chinese and English) for native Chinese speakers in Hong Kong schools where the language of instruction was either English or Chinese. The results demonstrated the expected patterns of relations between

self-concept and achievement based on previous I/E research (Marsh & Hau, 2004; Möller et al., 2009) when integrating both Chinese (students' native language) and English (students' nonnative language) as verbal domains. Specifically, the paths from math achievement to math self-concept (.61) and from Chinese achievement to Chinese self-concept (.33) were substantially positive, whereas the cross-paths from the achievements of math and Chinese to nonmatching domains of academic self-concept were statistically negative (−.34 for Chinese-math; −.22 for math-Chinese). This pattern was similar in the I/E model for math and English (.58 to .59 for horizontal paths and −.27 to −.30 for cross-paths).

The Competence-Affect Separation Within Math and Verbal Self-Concepts

In addition to well-established and widely documented domain specificity of academic self-concept (Marsh, 1986; Marsh & Hau, 2004; Seaton, Marsh, Yeung, & Craven, 2011; Xu et al., 2013), recent advances in self-concept research extended the structure of academic self-concept to a further distinction between competence and affect components within each domain of academic self-concept. Originally, academic self-concept was supposed to comprise both evaluative and descriptive components (Marsh, 1990b; Shavelson et al., 1976). This assumption was integrated in the construction of the Self-Description Questionnaire I (SDQ I), a well-validated instrument to assess multiple self-concept facets with preadolescent children (Byrne, 1996; Marsh, 1990b, 2007). To measure self-concept in academic domains (math, verbal, general school), the SDQ I integrates competence-related items addressing students' self-perceptions of competence (which are more evaluative) and affect-related items addressing students' motivational and affective responses (which are more descriptive). Both sets of items were originally pooled together to create the domain-specific academic self-concept scales.

However, an increasing body of studies using confirmatory factor analyses (CFA) with the SDQ I showed that separate constructs were defined by the competence-related and affect-related items of the SDQ I math and verbal scales in a sample of Australian elementary and secondary students (Marsh, Craven, & Debus, 1999) and in a sample of French-Canadian students (Marsh & Ayotte, 2003). It should be noted that these studies (Marsh & Ayotte, 2003; Marsh et al., 1999) only relied on the within-network approach (Byrne, 1984) as they examined the internal structure of academic self-concept using confirmatory factor analyses. Sophisticated self-concept validation, however, should rely on both the within-network and the between-network approaches (Byrne, 1984, 1996).

Arens, Yeung, Craven, and Hasselhorn (2011) enriched previous research on the competence-affect separation of academic self-concept by taking both the within-network approach and the between-network approaches into account. Based on CFA models with a sample of Grades 3 to 6 German students, Arens et al. (2011)

provided further within-network evidence as competence-related and affect-related items were shown to form distinct factors within math and verbal domains. In between-network analyses, the relation between the competence component of academic self-concept and academic achievement was found to be stronger than the relation between the affect component of academic self-concept and academic achievement. Interestingly, this was the case within and across domains as the competence component of math self-concept was more highly related to math achievement, but also to verbal achievement than the affect component of math self-concept. In parallel, the competence component of verbal self-concept displayed higher relations to verbal achievement but also to math achievement than the affect component. Extending these findings to a sample of Grade 8 Saudi students, Abu-Hilal, Abdelfattah, Alshumrani, Abduljabbar, and Marsh (2013) found that the internal structure of math and science self-concepts was clearer when competence and affective components within the two domains were separated. In addition, math and science competence self-perceptions were found to share higher relations with math and science achievements compared to the affect self-perceptions of the two self-concept domains, further suggesting the necessity for separating competence and affect components when examining the relations between academic self-concept and external outcomes such as achievement.

In a recent study conducted by Pinxten, Marsh, De Fraine, Van den Noortgate, and Van Damme (2014) with a sample of Grades 3–7 Belgian students, self-perceptions of math competence were also found to yield a larger predictive effect on subsequent math achievement than math affect. Compared to math competence, math affect was found to have a larger impact on subsequent effort expenditure. Based on these findings, academic self-concept is assumed to comprise a twofold multidimensional structure meaning that it is multidimensional (1) in terms of its domain specificity (the distinction between math and verbal self-concepts) and (2) in terms of the differentiation between competence and affect constructs within each domain (e.g., math competence, math affect). This structural feature tends to apply to students of different countries and cultures (e.g., German (Arens et al., 2011), French-Canadian (Marsh & Ayotte, 2003), Australian (Marsh et al., 1999), and Belgian (Pinxten et al., 2014)), but so far, there is no evidence regarding its applicability to Chinese students.

Chinese Cultural Model of Learning: Competence and Affect Beliefs Embedding in It

To generate a better understanding of interrelations of competence and affect components within Chinese students' academic self-concepts and their achievement relations, we take account of the Chinese cultural model of learning. Li (2009, p. 38) highlighted that "Children grow up in cultures that have different learning beliefs .... Without understanding what the belief system of a learner is, how it emerges, and how it functions in learning, our knowledge of human learning will be

deficient." More importantly, these learning beliefs not only have direct impact on learning and learning outcomes but also shape how students perceive their learning abilities and various types of affect involved in their learning processes.

Based on systematic qualitative approaches to study Chinese students' conceptualization of learning and how Chinese students would describe how an ideal student learns, Li (2001, 2002) found that five virtues are perceived to be essential in Chinese students' learning processes: (1) the notion of resolve, (2) diligence, (3) endurance of hardship, (4) perseverance, and (5) concentration. Importantly, Chinese learners "believe that once they have developed the learning virtues, they can apply them to all learning activities and processes" (Li, 2009, p. 61). Li (2002) conceptualized these learning beliefs of Chinese students as a cultural model of learning, in which they emphasize both "heart and mind for wanting to learn" (p. 248). This also echoes to Hau and his colleagues' research on Chinese students' incremental beliefs of personal abilities and the perceived compensatory relation between personal effort and abilities among Chinese learners (Hau & Ho, 2008; Hau & Salili, 1996b). It is also important to note that based on the cultural learning model developed by Li (2002), there are four types of affect that are essential in sustainable learning processes (i.e., passion/thirst for learning, commitment, respect, and humility). In the light of the Chinese cultural model of learning, it would be reasonable to assume that, compared to competence self-perceptions, affect self-perceptions might be similarly or even more highly related to achievement among Chinese students. This would be different to previous findings with students from other countries which demonstrated that self-perceptions of competence in math and verbal domains shared higher relations with matching achievements than the self-perceptions of affect (e.g., Abu-Hilal et al., 2013; Arens et al., 2011; Pinxten et al., 2014).

The Present Investigation

The structure of academic self-concept has been well documented to be domain specific rather than unidimensional based on a substantial body of research on the I/E model (see Möller et al., 2009 for a meta-analytic review; see also Skaalvik & Skaalvik, 2002). Moving a step further, an increasing body of research on academic self-concept has extended its domain-specific structure to a further separation between competence and affect components within domain-specific self-concepts (e.g., math competence and math affect: Arens et al., 2011; Pinxten et al., 2014). Although the I/E model has been extended to Chinese students (Marsh et al., 2001; Xu et al., 2013), the contexts were limited to mainstream education. In addition, support for the distinctiveness between competence and affect components of academic self-concept has mainly originated from students in Western and Arab countries (Abu-Hilal et al., 2013; Arens et al., 2011; Marsh et al., 1999; Pinxten et al., 2014). We thus encounter two research gaps with regard to Chinese students' academic self-concepts: (1) The I/E model has not been tested for vocational students in China which might constitute a different student population. Compared to students in the mainstream education, vocational students are usually from lower academic levels (Zhao & Lu, 2007) and
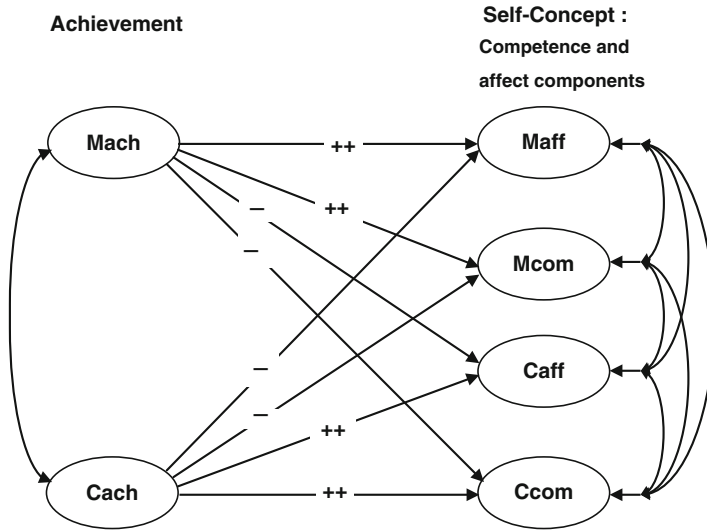
Fig. 7.2 The classic I/E model by incorporating the competence-affect separation within math and verbal self-concepts (Adapted from Marsh, 1986). *Note*: *The horizontal lines* represent substantially positive effects from achievements to competence and affect components within matching domains of self-concepts (++), respectively. The cross-paths represent statistically less substantial and negative effects from achievements to competence and affect components within nonmatching domains of self-concepts (−). *C* Chinese, *M* math, *ACH* achievement, *aff* affect self-perception, *com* competence self-perception

are learning primarily for early employment (Cooke, 2005; Kuczera & Field, 2010). (2) Research on the generalizability of the twofold multidimensional structure of academic self-concept in Eastern countries such as China is largely lacking. We also detect a more general research question, which is not restricted to Chinese students: The competence-affect separation within math and verbal self-concepts has not yet integrated into the I/E model. Based on this, this study aims to test the generalizability of the classic I/E model to Chinese vocational students (Fig. 7.1). Second, we aim to examine whether Chinese vocational students also display separate competence and affect components within domain-specific academic self-concept facets and to finally extend the classic I/E to the separation between competence and affect components of math and verbal self-concepts (Fig. 7.2).

Method

Sample

The sample of the present study consisted of 962 secondary students from China's vocational education [529 (55 %) male, 420 (43.7 %) female; 13 (1.4 %) with no gender indicated]. Students' age ranged between 14 and 24 years ($M = 16.59$,

SD = 1.17). Ethical approval and consent forms from all stakeholders of the data collection were gained before administration of the survey. Chinese secondary vocational education usually lasts three years. In the first year, math and Chinese are compulsory basic subjects. But in the second and third school years, vocational training courses are students' core courses, while math and Chinese are usually optional subjects. In this study, all students are from the first school year of secondary vocational education.

Measures

The Chinese version of the SDQ I (Watkins, Dong, & Xia, 1995) was used in the present study. Whereas the items for measuring math self-concept from the original English SDQ I (Marsh, 1990a) were retained for the Chinese SDQ I, students' self-concept related to Chinese as their native language was measured instead of reading self-concept as assessed in the original SDQ I. The Chinese self-concept scale was created by rewording and adapting the items of the reading self-concept scale (e.g., using "I get good marks in Chinese" to replace "I get good marks in reading"). Each scale (i.e., math and Chinese self-concept scales) consisted of ten items (eight positively worded items and two negatively worded items). The ten items of each scale can be further divided into five (four positive and one negative) competence-related items asking for students' self-perceptions of competence and five affect-related (four positive and one negative) items referring to students' self-perceptions of enjoyment and interest toward Chinese and math, respectively. To answer to these items, students rated on a 5-point Likert-type scale whether the items statements were false (1), mostly false (2), sometimes false, sometimes true (3), mostly true (4), or true (5). The first author administered the survey to the targeted vocational students during regular class time with assistance of local teachers. Students participated in the survey on a voluntary basis. Negatively worded items were reversely coded before all analyses to facilitate the interpretations of results. Students' school grades in math and Chinese were used as indicators for students' achievements in these subjects. The grades were obtained from the school-based test files in the first school year. School grades in China usually range from 0 to 100 with 0 depicting the worst and 100 the best grade.

Statistical Analyses

To fulfill our research purposes, two steps of statistical analyses were conducted. At the first step, CFA models were conducted to test the internal structure of academic self-concept among vocational students. According to the original assumption of Shavelson et al. (1976), Model 1 depicted a general academic self-concept (i.e., no domain specificity) as all items relating to math and verbal (i.e., Chinese) self-concepts were assumed to load on a common factor. Model 2 stated a
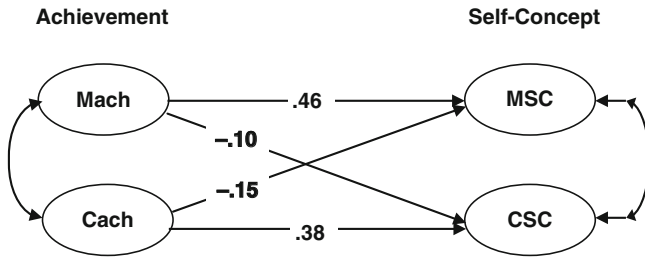
Fig. 7.3 The classic I/E model for math and Chinese among Year 1 vocational students. *Note.* For the sake of clarity, only standardized internal and external path coefficients are presented in this figure. For detailed statistics of a full model of the classic I/E model for math and Chinese domains (See Appendix A (Fig. 7.5))
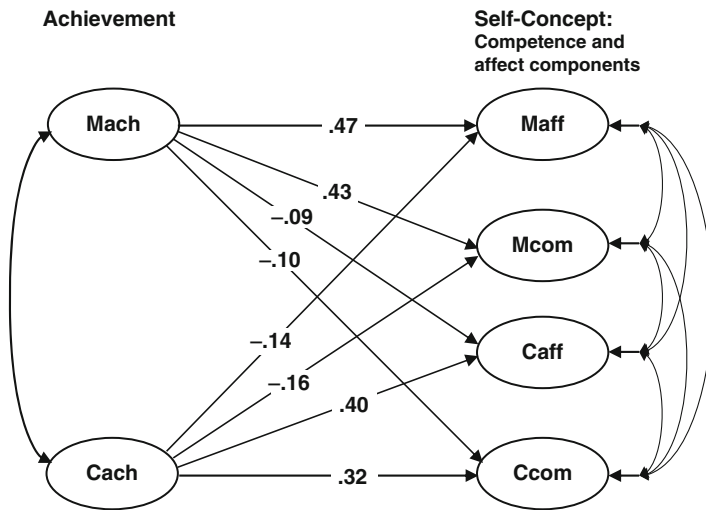
Fig. 7.4 The classic I/E model by incorporating the competence-affect separation. *Note.* For the sake of clarity, only standardized internal and external path coefficients are presented in this figure. For detailed statistics of a full model incorporating the competence-affect separation (See Appendix B (Fig. 7.6))

domain-specific structure of academic self-concept with two separate factors for math and Chinese self-concepts (based on Marsh et al., 1988). Model 3 additionally assumed the separation between competence and affect components within math and Chinese self-concepts (Arens et al., 2011) as the competence-related and affect-related items of each domain defined separate factors (i.e., math competence, math affect, Chinese competence, Chinese affect) . Based on Models 2 and 3, we then tested the classic I/E model at the domain-specific level for math and Chinese self-concepts (i.e., the classic I/E model; Model 4; see also Fig. 7.3) and at the component-specific level by separating competence and affect components within math and Chinese self-concepts, respectively (Model 5; see also Fig. 7.4). For this

purpose, we integrated achievement factors in math and Chinese which were defined by the single indicators of students' school grades in the respective domains with their uniquenesses set to zero.

All analyses were conducted in Mplus Version 7.11 (Muthén & Muthén, 1998–2013). The amount of missing values for the total responses to the math and Chinese self-concept scales was small, ranging from 0.5 to 1.6 % (with an average of 0.9 %). Missing values were estimated by the Full Information Maximum Likelihood (FIML) in Mplus (see Enders, 2010 for further details). The robust maximum likelihood estimator (MLR) was applied in all analyses involved in this study. Correlated uniquenesses between parallel-worded items used to measure students' self-concepts in math and Chinese (e.g., "I enjoy doing work in math-Chinese"; "I am good at math-Chinese") were included in all analyses (e.g., Marsh et al., 2013). In addition, to consider a possible method artifact related to negatively worded items (Marsh, Scalas, & Nagengast, 2010), all latent models included correlated uniquenesses between the negatively worded items of the two scales. Model fit was evaluated by the chi-square statistic with its degrees of freedom along with other widely accepted goodness-of-fit indices, namely, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). For CFI and TLI, values between .90 and .95 indicate a reasonable fit and larger than .95 indicate a good fit (Bentler, 1990). For RMSEA and SRMR, values between .05 and .08 suggest an acceptable fit (Kline, 2005) and values below .05 indicate a good fit (Hooper, Coughlan, & Mullen, 2008).

Results

The descriptive statistics and reliability estimates for the math and Chinese self-concept scales and the competence and affect components of each domain are presented in Table 7.1. The results showed that the internal consistencies of each domain-specific academic scale and their competence-related and affect-related subscales were satisfactory and sufficient for use with Chinese vocational students (Cronbach's alphas ranging from .76 to .90).

The Internal Structure of Academic Self-Concept

Table 7.2 presents the results of the series of the CFA models applied to examine the structure of academic self-concept among Chinese vocational students. The results showed that the one-factor model without considering the domain specificity of academic self-concept had the poorest fit to the data (CFI = .523, TLI = .419, RMSEA = .139), compared to Models 2 and 3. The four-factor model (Model 3) separating competence and affect components within verbal and math domains

Table 7.1 Descriptive statistics and reliability estimates for the variables

	Means	SD	α
Domains of academic self-concept			
Math self-concept (MSC)	2.83	0.97	.90
Chinese self-concept (CSC)	3.36	0.83	.88
Components within each domain			
Math affect (MAFF)	2.90	1.06	.85
Math competence (MCOM)	2.76	0.98	.80
Chinese affect (CAFF)	3.56	0.93	.82
Chinese competence (CCOM)	3.16	0.85	.76
Academic achievement			
Math achievement	64.98	13.95	–
Chinese achievement	66.58	15.61	–

Note. α=coefficient alpha reliability

Table 7.2 Goodness-of-fit indices of CFA and I/E model

Model	χ^2	df	CFI	TLI	RMSEA	RMSEA 90 % CI	SRMR	Model description
1	3046.93	156	.523	.419	.139	[.135; .143]	.184	CFA: one-factor model for global academic self-concept defined by math and Chinese self-concepts
2	457.78	155	.950	.939	.045	[.040; .050]	.054	CFA: two-factor model for math and Chinese self-concept
3	359.82	150	.965	.956	.038	[.033; .043]	.052	CFA: four-factor model. Domain specificity of academic self-concept and differentiation between competence and affect components
4	519.715	191	.952	.942	.042	[.038; .047]	.050	The classical I/E model (math and verbal domains)
5	408.467	182	.967	.958	.036	[.031; .041]	.048	I/E model (with a differentiation between competence and affect components within each domain)

Note. CFI comparative fit index, *TLI* Tucker-Lewis index, *RMSEA* root mean square error of approximation, *CI* confidence interval, *SRMR* standardized root mean squared residual. All models were estimated by the maximum likelihood estimator with robust standard errors (MLR) and integrated correlated uniquenesses between negatively worded and parallel-worded items
Note: $*p < .05, **p < .01, *** p < .001$

Table 7.3 Standardized factor correlations from Models 2 and 3

	Math self-concept	Math affect	Math competence	Chinese affect
Chinese self-concept	.098*	–	–	–
Math competence	–	.961***	–	–
Chinese affect	–	.140**	.063	–
Chinese competence	–	.079	.094*	.872***

Note: * $p<.05$, ** $p<.01$, *** $p<.001$

demonstrated the best fit indices (CFI=.965, TLI=.956, RMSEA=.038) and was superior to the fit of Model 2 which only stated domain specificity of academic self-concept with no further separation between competence and affect components (CFI=.950, TLI=.939, RMSEA=.045).

Table 7.3 depicts the standardized factor correlations resulting from Model 2. Math and Chinese self-concepts were nearly unrelated to each other ($r=.10$) demonstrating their distinctiveness. Table 7.3 includes the standardized factor correlations resulting from Model 3 incorporating the competence-affect separation within math and Chinese self-concepts. The results further supported the domain specificity of academic self-concept as well as the separation between competence and affect components as the competence components of math and Chinese self-concepts were correlated close to zero ($r=.09$). This was also evident for the affect components related to math and Chinese self-concepts ($r=.14$). The strong separation between math and Chinese self-concept domains was further supported by the observation of near-zero relations between math affect and Chinese competence self-perceptions ($r=.08$) and between math competence and Chinese affect self-perceptions ($r=.06$). Additionally, although the competence and affect components within math and Chinese self-concept domains were highly correlated ($r=.96$; $r=.87$, $p<.001$, respectively), their correlations were not perfect, further demonstrating their separable feature.

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Model 4 tested the classic I/E model for verbal (Chinese) and math domains, while Model 5 additionally took the competence-affect separation into account. The results showed that Model 5 (see also Fig. 7.4) fitted the data better than Model 4 (Fig. 7.3), lending further support to the competence-affect separation within verbal and math self-concepts.

Table 7.4 presents the standardized paths coefficients resulting for two I/E models estimated in the present study. Consistent with previous research (e.g., Möller et al., 2009; Xu et al., 2013), math and Chinese achievements were positively and significantly correlated ($r=.59$). For Model 4, the results showed that the paths from math and Chinese achievements to matching domains of academic self-concept

Table 7.4 Summary of standardized path coefficients of the classic I/E model (the self-concepts of math versus Chinese)

Model 4 (see also Fig. 7.3)			Model 5 (see also Fig. 7.4)		
Correlation coefficients			Correlation coefficients		
Mach ↔ Cach	MSC ↔ CSC		Mach ↔ Cach	Mcom ↔ Ccom	Maff ↔ Caff
.589***	.104*		.589***	.108*	.144**
External paths coefficients			External paths coefficients		
Mach → MSC	Cach → CSC	Mach → Mcom	Mach → Maff	Cach → Ccom	Cach → Caff
.457***	.377***	.432***	.469***	.316***	.395***
Internal paths coefficents			Internal paths coefficents		
Cach → MSC	Mach → CSC	Cach → Mcom	Cach → Maff	Mach → Ccom	Mach → Caff
-.151***	-.102*	-.157***	-.143**	-.099*	-.094*

Note. C Chinese, M math, COM competence self-perception, AFF affect self-perception, SC self-concept
*** $p < .001$, **. $p < .01$, * $p < .05$

were positive and significant ($\beta = .457$, $p < .001$ for math, $\beta = .377$, $p < .001$ for Chinese), whereas the cross-paths to nonmatching domains of academic self-concept were significantly negative ($\beta = -.102$, $p < .05$ for the math-Chinese path and $\beta = -.151$, $p < .001$ for the Chinese-math path). When extending this classic I/E model by integrating the competence-affect separation (Model 5), we found that the paths leading from math achievement to math competence self-perception ($\beta = .432$, $p < .001$) and affect self-perception ($\beta = .469$, $p < .001$) and from Chinese achievement to Chinese competence self-perception ($\beta = .316$, $p < .001$) and affect self-perception ($\beta = .395$, $p < .001$) were all positive and significant. The cross-paths from math and Chinese achievements to nonmatching competence and affect self-perceptions (e.g., from math achievement to Chinese competence self-perception or

from Chinese achievement to math competence self-perception) were all negative and statistically significant, ranging from $\beta=-.094$, $p<.05$ to $\beta=-.157$, $p<.001$ (see also Fig. 7.4).

Discussion

The major purposes of the present investigation were (1) to test the classic I/E model with vocational students in China and (2) to test whether Chinese vocational students also differentiate between competence and affect components of domain-specific academic self-concepts in order to finally expand the classic I/E model by incorporating this competence-affect separation of academic self-concept. With regard to the first aim, the present study found evidence of the validity of the classic I/E model for Chinese vocational students. Previous research on the I/E model has demonstrated a broad generalizability of the I/E model across students of different achievement levels, gender, and age (for comprehensive reviews, see Marsh, 2007; Möller & Marsh, 2013; Möller et al., 2009; see also Skaalvik & Skaalvik, 2002; Tay et al., 1995). Hence, this study expanded evidence of the broad generalizability of the I/E model by supporting it within a sample of Chinese vocational students as a special population of students who are usually perceived as coming from low-achieving backgrounds (Zhao & Lu, 2007) and whose learning purposes are mainly for acquiring knowledge and vocational skills as compared to their counterparts in mainstream education.

An interesting finding of the present study addresses the contrast effects originating from using internal frames of reference in dimensional comparisons. Specifically, the cross-path coefficients between nonmatching achievement and self-concept measures (i.e., from Chinese achievement to math self-concept and from math achievement to Chinese self-concept) were weaker than found in the I/E study conducted by Xu et al. (2013) with a sample of Chinese students in mainstream education. This result could be explained in light of current developments of dimensional comparison theory seeking to address three key questions, "why [compare]," "[compare] with what," or "with what effect [these comparisons would produce]" (Möller & Marsh, 2013, p. 544), and in relation to the role of math and native language (i.e., Chinese) in mainstream and vocational education. For example, given the less salient role of math and Chinese in vocational schools compared to core vocational training courses, vocational students' motivations to make use of dimensional comparisons (i.e., "why compare") between the two school subjects may be less important than for mainstream students (for whom math and Chinese are two core school subjects). Similarly, given the less salient role of math and Chinese as school subjects in vocational education compared to mainstream education, it is likely that standard and target domains of academic self-concept involved in vocational students' dimensional comparisons (i.e., "compare with what") might not be limited to Chinese and

math, but might also include the self-concepts of other core vocational training courses and subjects. Hence, the strength of contrast effects between math and Chinese produced by dimensional comparison processes may differ between vocational students and students from mainstream education (e.g., Xu et al., 2013).

It is also important to note that the classic I/E model does not consider the separation between competence and affect components within domain-specific academic self-concepts, which was, however, demonstrated in previous studies with Western students (Arens et al., 2011;Marsh & Ayotte, 2003; Pinxten et al., 2014) and in this study with Chinese vocational students. The finding that Chinese vocational students were also demonstrated to differentiate between competence and affect self-perceptions in math and verbal domains adds to the generalizability of the twofold multidimensional structure of academic self-concept across countries and cultures. This finding is particularly remarkable in the context of the cultural model of learning beliefs, as, according to this, Chinese students were expected to differentiate between competence and affect self-perceptions to a lesser extent.

With regard to the I/E model extended to the inclusion of competence and affect components, the findings demonstrated higher effects of math and Chinese achievements on the affect components of matching domains of self-concept as compared to the effects of math and Chinese achievements on the competence components of domain-matching self-concepts. This pattern of results provided further evidence of the necessity for the separation between competence and affect components within self-concept domains. In a previous study conducted with German primary and secondary students (Arens et al., 2011), stronger correlations were found between self-perceptions of math and verbal (German) competence and matching domains of achievement than between affect self-perceptions and achievement. Similarly, Abu-Hilal and his colleagues found that Saudi secondary students' math competence self-perception shared a higher relation with math achievement than students' affect self-perception in the math domain (Abu-Hilal et al., 2013). Another study conducted with Grades 3–7 students (Pinxten et al., 2014) also showed that the self-perception of math competence had a stronger correlation with math achievement than the self-perceptions of math affect. Thus, the findings of this study showing higher relations of math and Chinese achievements to matching affect self-concepts than to matching self-perceptions of competence were somewhat unexpected. We might be able to explain these findings in the context of the particular sample of Chinese vocational students and the cultural model of learning beliefs (Li, 2002, 2009). The relatively higher relation between affect self-perceptions and achievement might be reasonable in light of the core role of positive affect (e.g., passion/thirst to learn, perseverance) involved in learning processes, as well as the compensatory relationship between students' positive affect toward learning (e.g., effort, endurance of hardship) and abilities (Hau & Ho, 2008; Hau & Salili, 1996a, 1996b; Li, 2009). These findings thus enrich the current scope of research on the relations between academic achievement and competence and affect components, which make the present study remarkable.

Implications

The findings of this study bear important implications for research on the classic I/E model given that existing literature on its cross-cultural generalizability has been primarily based on responses from mainstream elementary or secondary and higher education students (Marsh & Hau, 2004; Möller et al., 2009; Möller, Zimmermann, & Köller, 2014). Extending the I/E model to Chinese vocational students, the present study provided evidence that the joint operation of both external (social) and internal (dimensional) comparison processes in the formation of students' academic self-concept is also applicable to this group of students (Marsh & Hau, 2004; Möller et al., 2009). This finding contributes to existing literature on the classic I/E model of academic self-concept and to the broad generalizability of the I/E model.

Besides theoretical contributions, these findings may hold practical implications to self-concept enhancement research. Self-concept enhancement is of great importance given the positive implications of a high level of self-concept for various learning outcomes (Marsh & Craven, 2006; Marsh & O'Mara, 2008). Based on the findings of a further distinctiveness between competence and affect components and their strong associations with academic achievement, Chinese students' academic self-concept may benefit from enhancement interventions targeting to promote both their self-perceptions of competence and affect. Additionally, the differentiable feature of the two self-concept components also allows researchers and practitioners to flexibly design educational interventions to promote them respectively or jointly. It is also important to note that feedback enhancement approaches which have been found to effectively enhance students' self-concept in previous research in Western countries (e.g., Craven, Marsh, & Burnett, 2003; Craven, Marsh, & Debus, 1991) and Chinese students (Chan & Lam, 2010; Yang & Watkins, 2013) can be adapted to enhance students' self-perceptions of both competence and affect in need.

Limitations and Directions for Future Research

Despite its contribution to the generalizability of the classic I/E model and its extension to the competence-affect separation within verbal and math self-concepts in a sample of Chinese vocational students, several limitations of this study should be noted. First, this study is only cross-sectional in nature. For a deeper understanding of the formation of academic self-concept of vocational students, longitudinal studies are needed to test the development of students' capabilities of differentiating between the competence and affect self-concept components within and across academic domains.

With respect to verbal self-concept, consistent with the classic I/E model, only the domain of Chinese (the native language for Chinese vocational students) was considered in the present study. To broaden the current scope of incorporating the competence-affect separation in the I/E model, future studies should also consider nonnative languages (e.g., English for Chinese students). Given that vocational

students have core vocational training courses in addition to courses in math, native language, and nonnative languages, vocational students' academic self-concept may further comprise other important domains. As such, it seems to be worthwhile to integrate such self-concepts related to vocational training domains to generate a comprehensive understanding of the generalizability of the I/E model and the twofold multidimensional structure of academic self-concept among the population of Chinese vocational students. Our study was mainly based on a sample of vocational students from mainland China, and comparative data from mainstream students were not included. Future studies should realize a design which includes not only vocational students but also students from other educational forms (e.g., mainstream secondary, higher education) in China and other East Asian countries. Finally, the present study used students' school grades as achievement indicators. In addition to academic achievement, future studies should consider a broader range of outcome criteria, for example, approaches to learning (Kember & Watkins, 2010; Watkins & Biggs, 1996), effort expenditure to school subjects (McInerney, Yeung, & McInerney, 2001), and incremental beliefs of abilities (Blackwell, Trzesniewski, & Dweck, 2007) to generate a deeper understanding of the relations between Asian students' self-perceptions and learning outcomes.

Conclusion

In the past two decades of self-concept research and theory, academic self-concept has been well documented to be highly associated with academic achievement and other desirable educational outcomes (for comprehensive reviews, see Marsh & Martin, 2011; Marsh & Retali, 2010). Hence, to foster and maintain students' positive academic self-concept should be an important goal across different levels and types of education. However, these findings mainly originated from students in mainstream education, and research on academic self-concept of students in vocational education has been limited. The present study extended previous research on academic self-concept to vocational students in Mainland China. The results supported the generalizability of the twofold multidimensional structure of academic self-concept, lending important evidence of generalizability for this recently established characteristic of students' academic self-concept. By testing the classic I/E model among Chinese vocational students, the present study added further evidence of its broad generalizability. Most importantly, the present study extended previous studies on the I/E model to Chinese vocational students by incorporating the competence-affect separation within self-concept domains. The results demonstrated differential effects from math and verbal achievements to the competence and affect components of math and verbal self-concepts, suggesting the significance of integrating the competence-affect separation of academic self-concept to future studies on the I/E model. Future studies are also needed to broaden the results by testing them in longitudinal studies which should also use larger and more diverse samples and integrate a range of outcome variables and self-concept facets.

Appendices

Appendix A
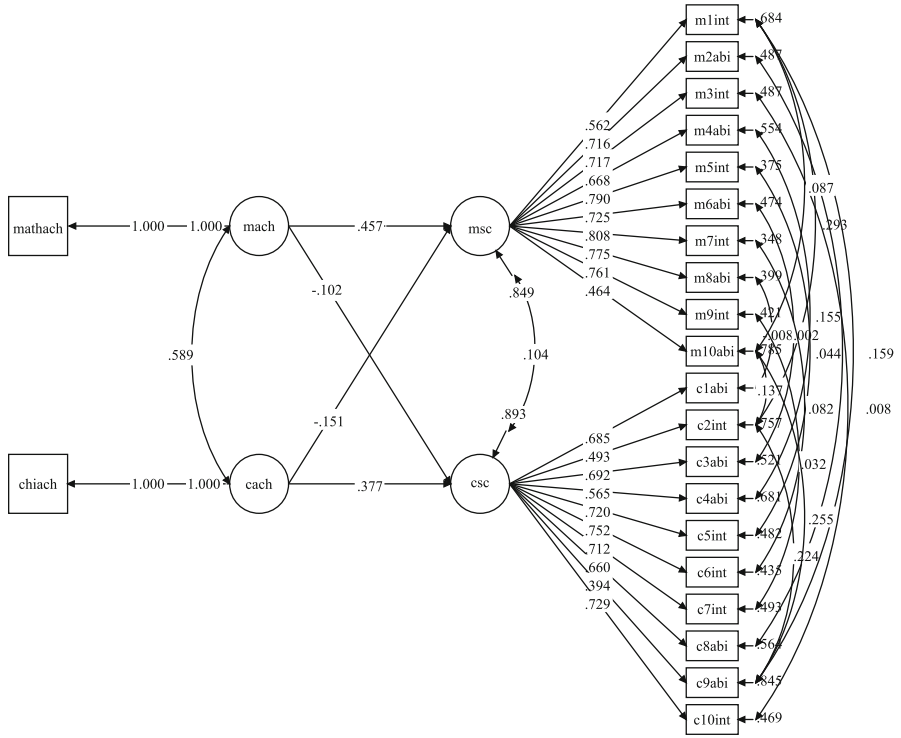
Fig. 7.5 The classic I/E model for math and Chinese among year 1 vocational students (Full Model)

Appendix B
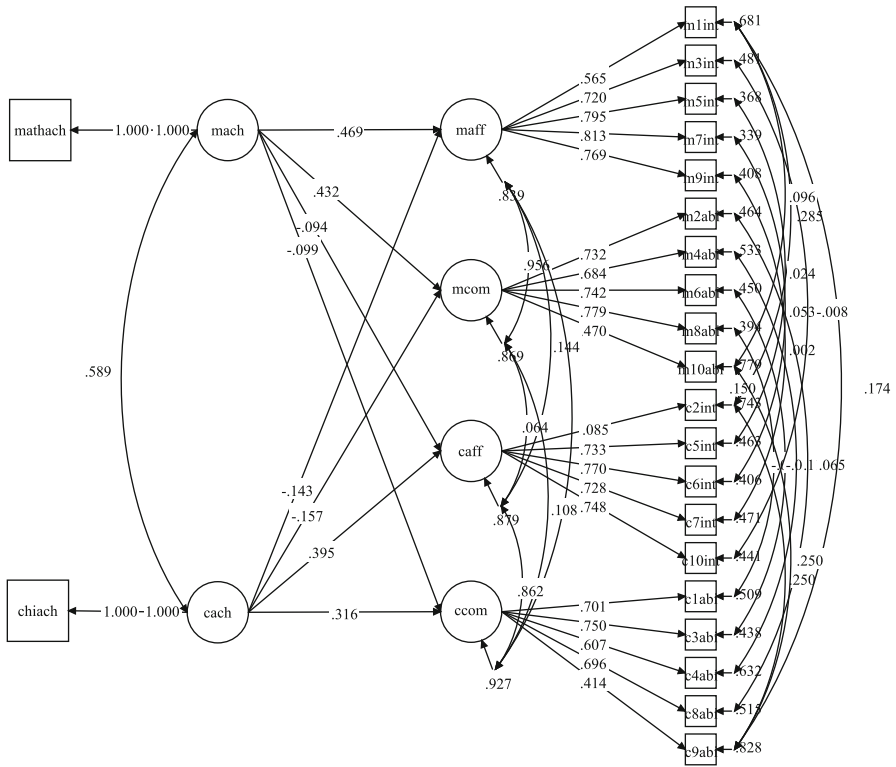
Fig. 7.6 The classic I/E model by incorporating the competence-affect separation (Full Model)

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Chapter 8
The Arab Culture and the Arab Self: Emphasis on Gender

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Abstract The purpose of this study was to examine the interaction between culture and psychological constructs such as self-concept, goal orientations, and achievement. Of interest in this paper is the differential socialization of boys and girls in the Arab culture and how socialization affects self-concept, goal orientation, and achievement. In this chapter, we review the literature published about these constructs with Arab samples in various Arab countries. Also, unpublished data will be used to address issues of socialization, self-concept, goal orientations, and achievement. In this paper, we argue that boys and girls have different socializations and, hence, may express different goal orientations and different levels of self-concept and achievement. We also argue that Arab boys are more assertive, while Arab girls are more affiliated. For the purpose of this chapter, we will rely on various instruments. These instruments were originally developed in the West. Among these instruments are Motivated Strategies for Learning Questionnaire (MSLQ), Student Background Questionnaire (SBQ), and Self-Description Questionnaire (SDQ). Part of the data for this chapter was collected by the authors, and other data are from the TIMSS database. Although valid and reliable, these instruments still require some adjustment to suit the Arab culture more. Preliminary results indicate that Arab boys and girls differ on many psychological constructs. In discussing results, we will contemplate on two opposing types of the individual and the culture. In that, we will address the issue whether the Arab individual is independent or interdependent and whether the culture is individualistic or collectivistic.

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Objective of the Chapter

To derive the objectives of this chapter, we start with the "not objectives" of this chapter. We don't intend to compare the Arab-Islamic culture with other cultures simply because we don't have empirical data on other cultures. However, in some arguments, we make some comparison between the Arab-Islamic culture and other cultures, especially the Western and the Eastern cultures. In this chapter, we are interested in exploring how the culture and the socialization of children, particularly the socialization of the boy and the girl, may affect self and personality type. We argue that the boy and the girl in the Arab-Islamic culture are differentially socialized. Consequently, we predict that this differential socialization would affect how the boy compared to the girl perceives his self. In interpreting our results, we consider the dramatic changes in the family structure, education, employment laws, and civic laws. We also provide a historical background and discussion of the recent events that have been sweeping the Arab world for the past 4 years. We begin by providing the background of the chapter.

Contemporary Changes in the Arab Societies: Contest of Self-Perception

Many Arab societies are experiencing unusual changes in the present time. People in these countries differ on the meaning, the causes, and the consequences of these changes. To many, the uprisings that some Arab countries are going through are signs of self-change. However, some believe that these changes are fabricated outside of the Arab world and are imported to Arab countries; most of those may belong to the conspiracy theory. Although the discussion of these changes is beyond the scope of this chapter, the different interpretations of the changes have implications to self both for the individual and for the society.

The camp that sees the changes as a logical result of injustice, and people are maturing to revolt, believes that the society is maturing and it has the capabilities to revolt against injustice. This may be interpreted as cultural self-confidence or positive collective self-concept. Also, it can be understood as a new thinking that people no longer need to wait for the individual hero or rescuer or the will of a super- or metaphysical power. This camp may have more confidence that the educated generations can act. Education, in their view, produces braver individuals than illiteracy does.

The camp that sees the uprising as a foreign commodity may contain some who believe that change is a destiny and it doesn't come by the will of people. Change is the God's business, not the man. Until the will of God comes, people should obey those who rule (obey God, the messenger, and those who rule, Quran). Another group of people who belong to this camp think that people are helpless and the uprisings are the act of foreign powers or the capable powers – known or unknown (see Mahmoud, 1974). In this camp are those who believe that Arabs can't live with democracy but only with monarchy; democracy was not made for Arabs

(self-criticism). This group of people has less confidence in the power of people and their ability to act. Some writers in the West believe similarly that these uprisings have been planned outside the Arab world but have been implemented in the Arab world. Individuals of this camp sometimes argue that because people have no power to act, the uprisings are doomed to fail or create chaos.

Between these two views of the uprisings in some Arab countries, there is a silent majority. It is probably important to say a few words about this majority. Some of this majority is either religious (not political) or independent nationals (semiliberal). They believe that the Arab-Moslem nation is not an extreme nation; and they believe that religion supports this notion of the nation (Umma). Quran says that "we rendered you an average nation- wajalnakum ummatan wasata." They reject the extreme behavior by very small factions in the Arab-Moslem world. This group of people tends to be more rational and low profile. They also believe that any change should be gradual and not revolutionary and sudden. As such, they have some suspicion about the value of the current uprisings.

We argue that if the society is confused about its self-perception and self-evaluation about events that happen among them, it is normal that the individual may experience similar confusion. Nonetheless, one can't ignore that the Arab world and the Arab culture is undergoing serious changes and serious debates. These changes, with no doubt, have been the result of mass education. Also, we believe that these changes will certainly have impact on self and personality of Arab individuals in the foreseen future.

Two Societies in One: Male and Female

In the Arab culture, compared to the Western culture and some Eastern cultures, men and women are not supposed to intermingle. In schools, and in society at large, Arab-Moslem males and females ought to be segregated. Most houses in the Gulf States have two sitting rooms: one for males and the other for females (Riphenburg, 1998). Of course, there are some variations among different Arab-Moslem societies and communities. Some societies are more strict (e.g., Saudi Arabia, Afghanistan, Iran) than other societies (e.g., Lebanon, Tunisia, Jordan). Oman and the UAE are in the middle on the issue of male-female segregation. However, schools and universities are segregated or semi-segregated. An Arab writer said that unless women have full role in the changes, the changes can never be successful. Changes without the complete force of women will remain romantic and random (www.watan.tv, August 9, 2014).

What Is Self?

Many researchers have emphasized the importance of significant others to self-development. In the Arab-Moslem culture, the role of others, particularly significant others, in self-concept formation may even be more important. Maehr (1974) states:

"persons who are important to us do affect the way we define ourselves" (p. 6). G. H. Mead indicates that humans are born without self-concept but they acquire it through social interaction (cited in Yawkey, 1980). Coopersmith (1967) defined self as "an abstraction that an individual develops about the attributes, capacities, objects, and activities he possesses and pursues" (p. 20). We believe that in this regard individuals in different cultures have a lot in common (e.g., activities, social interactions, goals, values, attitudes, etc.). The difference is rather in degree and not in kind. That is, cultures lie on a continuum of differences rather than fitting in absolute and fixed categories. The scaling of the continuum may differ from one phenomenon to another. For example, self-perceptions of different kinds, math, verbal, parents' relations, and appearance, were not remarkably different among Arab students from self-perceptions of Australian students (Abu-Hilal & Al-Hussain, 1997). However, motivation and perceived control over events among Arab students may be different from that of Western individuals such as Americans, Australians, and Europeans. Arab students may be more socially (extrinsically) motivated than personally (intrinsically). Also, they may attribute success or failure to external causes more often than to internal causes (Barakat, 1993; Mahmoud, 1974). Although these characteristics can be classified as collectivistic ones, sometimes collective tendencies can coexist with strong unique self-identities (Kurman & Sriram, 2002). It is possible that Arab-Moslem young men and women may express traditional or religious values and at the same time may express independent tendencies.

Models That Explain Relationship Between Self and Culture

Various models have been proposed to explain the relationship between culture and self. The models posit that each culture has a theme around which attitudes, beliefs, norms, roles, values, and other elements are organized. In the individualistic vs. collectivistic model, Triandis (1995) states: "In the case of individualism the theme is the self as an autonomous entity; in the case of collectivism the theme is the self as an aspect or part of one or more in-groups or collectives." (p. 2). Also, Triandis (1995, 2001) proposed another dichotomy: traditionalism vs. modernization. Parallel to Triandis' typology (individualistic vs. collectivistic), there has been another typology that distinguishes between independent and interdependent self (Markus & Kitayama, 1991). Landrine (1992) described the independent self as a referential self that "has abilities, preferences, needs and a 'style' of its own …" (p. 403). Harrington and Liu (2002) stated: "The independent self is also viewed as a primary unit from which all other relationships are derived: communities, families, and friendships all exist to meet the needs of the individual" (p. 39). The interdependent, on the other hand, "is viewed as unique in accordance with specific configuration of relationships between the individual and others" (Harrington & Liu, 2002, p. 38). Also, the interdependent self is conformist and subordinate to group standards, and the idea of conforming and modesty (being average) is highly esteemed (Harrington & Liu). Sedikides and Strube (1997, cited in Becker et al., 2014) proposed the

self-concept-enhancing tactician model (SCENT) which posits that individuals internalize valued roles and judge themselves based on how close they enact these roles. In support of the SCENT model, Leary (2005) argued that self-esteem was a function of culturally normative values rather than personal values. Becker et al. empirically supported this argument through longitudinal and cross-cultural research. Becker et al. concluded that self-evaluation ought to be conceptualized as a "social-psychological process, influenced by socially normative rather than personal value priorities" (p. 15). Lamb and his associates (e.g., Bassen & Lamb, 2006) distinguished between affirmative and affiliated (relational) self. A distinction has also been made between individuals who are open to change and those who are conservatives (almost similar to traditionalism vs. modernization of Triandis (1995, 2001).

Although researchers like Triandis, Markus, and Kitayama used these dichotomies to portray cultures, inside one culture you may find that the two dichotomies prevail. The Arab culture is no exception. In one culture, one may define different subcultures (or subgroups) according to these dichotomies. Inside any culture, certain values, norms, and behaviors may prevail among individuals of a subgroup and to a lesser extent among another group (e.g., rural vs. urban, male vs. female, blue-collar workers vs. office employees, etc.). In this chapter, we make a zoom on gender. It should be noted, however, that empirical research to identify cultural types in the Arab-Moslem culture is limited and even scarce.

Self-Evaluation and Gender

Although female populations in Arab-Moslem countries have made giant progress in the past four to five decades in terms of education and employment, in most parts of the Arab world, men and women still have different roles and expectations. Self is part of one's social role and it is interconnected with expectations in the social system. In many Arab Gulf States' universities, female enrollment is larger than male enrollment. One cannot ignore the impact of education on male and female values, personality, attitudes, self-evaluation, and behavior. It is reasonable to assume that females and males are experiencing the change where traditional values are challenged and new values are emerging. Some studies have compared values, orientations, and self-concept across gender (see Abu-Hilal, 2001; Abu-Hilal & Al-Hussain, 1997; Abu-Hilal & Bahri, 2000) within the framework of a patriarchal social system.

The Arab-Moslem culture is a patriarchal culture as males are favored and have more power than female. For economic, religious, and social reasons, families preferred to have sons than to have daughters. Sons receive more family attention than girls do. We argue that such attention plays against the development of boys' self-concepts and motivation.

Boys and girls in the Arab world may diverge with regard to their evaluations of their competences with girls maintaining a self-improving orientation by which they strive to correct their weaknesses (see Abu-Hilal and Al-Malki, 2014a; Robins

& Beer, 2001, for more). On the other hand, boys may develop an unrealistically positive self-opinion and self-enhancing orientation. In making our argument, we use Dweck's theory of praising children (Dweck, 2000) and the results of cross-cultural research on self-enhancement vs. self-improvement as well as assertiveness vs. affiliation (e.g., Bassen & Lamb, 2006; Heine & Hamamura, 2007; Minkov, 2008; Robins & Beer, 2001). According to Dweck (2000), praising boys is not necessarily a motivator. In school, it seems that boys seek tasks that will confirm the exaggerated self-concept that they have developed at home, while girls are more keen toward self-improvement. Also, while girls are more oriented toward affiliation, boys are more oriented toward assertion.

Heine and Hamamura (2007), Robins & Beer (2001), and Minkov (2008) explained paradoxical relations between achievement and self-concept for students from East Asia and the West. They argued that students in high-achieving countries (e.g., East Asia) feel a strong pressure for high achievement and are described as self-improving. Students in the West (particularly the USA), however, are self-enhancing (positive illusion). It should be noted that "self-enhancing and self-improving motivations reflect a similar underlying motivation… a desire to be a good person" (Heine & Hamamura, 2007, p. 22). Parallel to this, we argue that Arab girls more than boys have pressure to achieve, because they have limited alternatives to go to college compared to boys. Boys can go to local or foreign universities but much fewer girls can go to colleges abroad. Many studies that compare boys' and girls' achievement have shown superiority among girls. Girls' advantage, however, does not necessarily translate into more positive self-concept or assertiveness. Gillgan (1982) discussed the concept of responsibility and care among men and women. Gillgan claimed that the concept of responsibility among women is based on care and concern; and women focus primarily on relationships. Also, Joseph (1994) explained that Arab women, somewhat more than men, are expected to put others before themselves and to see their interests rooted in those of others, especially family members.

More Characteristics of the Arab-Moslem Culture

Is the Arab self an interdependent self? The interdependent self is conformist and subordinate to group standards, and the idea of conforming and modesty (being average) is highly esteemed (Harrington & Liu, 2002). Being average and modest are parts of the Islamic faith and highly regarded social values. The keyword here is modesty and not personal pride or bragging. Like other collectivistic cultures (e.g., Chinese, Japanese), Arab individuals do not brag about personal accomplishments. Accomplishment is seen in the context of family and community. Religion and history may provide some explanation. To many Moslems, God is the giver and taker, and God's will is the power for action and change. Historically, the leader of the tribe was the one who gave, directed, deprived, punished, and rewarded (symbol of God); the member of the tribe only played a vicarious role. An individual who

succeeded could not accept the credit for his success without the blessing of the leader. These particular attitudes are reflected in Markus and Kitayama's (1991) description of the interdependent self as this type of self emphasizes deference (the need to admire and serve a superior), the need to agree, affiliation, dependence, and avoidance of blame.

Kurman and Sriram (2002) provided two implications of the interdependent self-system: The first one is highly developed identification with the group (high collectivism), while the second is a low degree of perceived self-uniqueness (low individualism). Kurman and Sriram proposed that "when group identification is very high, self-esteem is determined mostly by in-group attributes and successful relationships within the group and not as much by personal success" (p. 72). We may add a third implication to these of Kurman and Sriram. Personal responsibility in the interdependent self-system often gets lost, and individuals attribute failure or even success to vague causes (e.g., others, luck, conspiracy). One can hardly assume or accept responsibility for change (Triandis, 1995). Quite often, people reject participation in activities aiming at political or social change, believing that change should come from God or from powerful others. This belief may be seen as an extension of education during childhood where the father is emphasized as one who protects, makes decisions, gives, and deprives. It has become a common pattern even among intellectuals to attribute backwardness, poverty, and literacy to foreign powers and conspiracy (See Abu-Hilal, 2008; Barakat, 1993; Sharabi, 1974). The extended family determines many affairs of the nuclear and newly established family. As long as the active players (e.g., father or grandfather) keep the extended family together, the smaller self remains "like a fraction and does not become whole until the individual has found a proper place in a social unit" (Triandis, 1995, p.16).

Instruments

The present paper relies on several instruments. These instruments were administered at different times and to different samples in two countries of the Arab world: the UAE and Oman. The first instrument was Myers-Briggs Type Indicator (MBTI). MBTI is a personality assessment designed to provide feedback about an individual's patterns of behavior. The MBTI was based on the theory of psychological types by Carl Jung. It can show how an individual likes to make decisions, to organize her or his life, and to acquire information. The MBTI can also demonstrate where an individual focuses her/his attention (on the outer world of people and things or inner world of ideas). Myers-Briggs proposed a typology of four bipolar dimensions (types) of preference: extraversion vs. introversion, practicality vs. imagination, thinking vs. feeling, and organization vs. flexibility. As self is one important core of personality structure, it is important to employ personality type to understand relationships between culture and self.

The second instrument was the Motivated Strategies for Learning Questionnaire (MSLQ). It was used to collect data from college Arab students in the UAE

(Abu-Hilal & Al Khatib, 2011). The questionnaire encompasses many subscales, but only seven subscales were used. They are intrinsic and extrinsic motivation scales, task value, control, self-efficacy, test anxiety, and self-regulation.

The third instrument was developed and used by Becker et al. (2014). Becker et al. investigated openness to change vs. conservation and self-enhancement vs. self-transcendence among samples from 20 countries; Lebanon, Oman, and Turkey were among those countries. The second author of this chapter was a coauthor of Becker's paper; he supplied data of the Omani sample. Analysis of Omani data revealed interesting results.

Arab Boys and Girls: Related Research

During the past four decades, research has documented a clear advantage for Arab girls (vs. boys) in academic performance. It should be noted that academic performance is not isolated from other personality and motivational characteristics including self. Academic performance is strongly related to self-perception. Hence, although academic performance is presented alone in this part, it should be understood as a separate construct from other self-constructs.

In a longitudinal study, Abu-Hilal and Abdel-Hamid (1989) found that girls consistently outperformed boys in all school subjects, except English. Similarly, Abu-Hilal (2001) and Abu-Hilal and Al-Malki (2014a) found that girls outperformed boys in math and language. Recently, Marsh et al. (2013) found that girls in four Arab countries outperformed boys in math and science.

However, differences on other psychological characteristics across gender (Arab boys vs. Arab girls) have been inconsistent. Abu-Hilal (2001) found that girls had more positive self-concept than boys. Also, Abu-Hilal and Al-Malki (2014a) found that Omani girls expressed more positive verbal and math self-concepts than the boys did. Marsh et al. (2013), however, used the TIMSS 2007 data and reported that boys in four Arab countries had more positive math and science self-concepts than girls. Al-Abri (2014) used the TIMSS 2011 data and found that girls expressed more positive self-concept in math and science than boys did. Similarly, Alrajhi and Aldhafri (in press) used SDQ-I and reported that grade 10 female Omani students scored higher than male students in academic English self-concept. No gender differences were found in the students' social self-concept. Similarly, Abu-Hilal and Al-Malki (2014b) found significant gender effect on self-concept among Emirati and Omani students. The SDQ-I was administered to the Emirati sample in the 1990s and to the Omani sample in 2012. There were significant differences between the two administrations in an indication that self-concept has changed across the two periods.

The statistics in Table 8.1 reveal that college Arab boys and girls were significantly different on self-efficacy, test anxiety, and self-regulation. Girls were more efficacious, more self-regulated, and less anxious than boys. Boys and girls were not significantly different on intrinsic and extrinsic motivations, task value, and control.

Table 8.1 Means, standard deviations, and *t*-statistics of MSLQ constructs by gender

	Gender	N	Mean	Std. deviation	t
Intrinsic motivation	Male	204	4.616	1.268	−1.26
	Female	200	4.784	1.400	
Extrinsic motivation	Male	204	5.710	1.283	.43
	Female	200	5.658	1.180	
Task value	Male	204	5.493	1.100	−1.79
	Female	200	5.701	1.244	
Control	Male	204	5.476	1.134	−1.58
	Female	200	5.650	1.079	
Self-efficacy	Male	204	5.174	1.079	−2.39*
	Female	200	5.432	1.092	
Test anxiety	Male	204	4.178	1.405	2.32*
	Female	200	3.837	1.547	
Self-regulation	Male	204	4.776	.994	−3.45**
	Female	200	5.120	1.016	

*$p. < .05$, **$p. < .01$

Recently, Aldhafri and colleagues (Aldhafri & Alkharusi, 2014; Aldhafri, Alkharusi, Alrajhi, Alnabhani, & Alkalbani, 2014) used MSLQ and examined middle and high school students' English motivation from different districts in the Sultanate of Oman. They found that Omani students endorsed different types of motivation (e.g., extrinsic motivation, intrinsic motivation, efficacy beliefs), and these motivational constructs were interrelated with other variables measured by the MSLQ such as students' test anxiety, memorization, and critical thinking. No gender differences were found in students' motivation to learn English or in their levels of anxiety, memorization, or critical thinking.

Personality Types Among Arab Boys and Girls   A large representative sample of high school students ($N = 2294$) responded to the Myers-Briggs personality questionnaire. It can be noticed from Table 8.2 that there are significant differences in three of the four dichotomies between males and females. Females were more extraverted than males, while males were more introverted than females. Males were more sensing or practical than females. However, females were more intuitive/imaginative than males. Males had the thinking preference more than females, and females had the feeling preference more than males. There were no significant differences between males and females in the lifestyle preferences. These results are consistent with predictions and with cross-gender research.

Openness to Change and Conservation   Samples in the three countries (Oman, Lebanon, and Turkey) were clearly conservatives, with Lebanon a little less conservative than Turkey and Oman; and Oman was most conservative among the 20 countries in the study. Boys and girls were only significantly different on 6 of the 21

Table 8.2 Means, standard deviations, and *t*-statistics of the four dimensions of Myers-Briggs personality types by gender

	Gender	N	Mean	Std. deviation	t
Extraversion	Male	1117	29.89	10.62	−2.99[*]
	Female	1177	31.26	11.24	
Introversion	Male	1117	23.85	8.80	4.75[**]
	Female	1177	22.06	9.22	
Sensing/practical	Male	1117	27.51	4.05	9.87[**]
	Female	1177	25.77	4.39	
Intuition/imagination	Male	1117	15.89	5.11	−9.44[**]
	Female	1177	17.97	5.43	
Thinking	Male	1117	11.95	4.64	15.10[**]
	Female	1177	9.03	4.62	
Feeling	Male	1117	12.32	4.63	−15.64[**]
	Female	1177	15.30	4.49	
Judging/organizing	Male	1117	36.27	8.53	−1.23
	Female	1177	36.71	8.44	
Perceiving/flexible	Male	1117	30.19	8.57	.55
	Female	1177	30.00	8.43	

[*]$p. < .01$; [**]$p. < .001$

vignettes (see Table 8.3). The first one supports our prediction that boys are more open to change and less conservative: "She/he likes surprises and is always looking for new things to do; she/he thinks it is important to do lots of different things in life." Looking for new things to do is more like boys than girls. Also, Omani girls were more conformist and affiliated than boys. Girls endorsed that people should follow rules at all times more than boys did: "She/he believes that people should do what they're told. She/he thinks people should follow rules at all times, even when no one is watching." Consistently, girls showed more benevolence than boys. Girls believed more than boys did that "It is important to her/him to listen to people who are different from her/him; even when she/he disagrees with them, she/he still wants to understand them." However, girls were less keen to spoil themselves. Boys were more interested in having a good time than girls did.

It is evident that there has been a change in attitudes among girls in the Arab-Moslem societies. Although we argued in previous writings (Abu-Hilal & Al-Malki, 2014b) that girls were interested in vicarious relational roles and they expressed attitudes of modesty, the recent data from the Omani society reveals a new temperament. Boys and girls seem to express similarly positive attitudes toward independence and competition. The means reported in Table 8.3 reveal that Omani college and high school students are less likely to show high openness to change. In a 6-point Likert scale, most means were around the value of 2, and boys and girls were not significantly different on most of the items. These results support the findings of Becker et al. (2014) that the Omani society is a conservative society and less prone to change.

Table 8.3 Means, standard deviations, and *t*-test for equality of means by gender

1 = not like me at all, 6 = very much like me	Sex	N	Mean	SD	t
1. Thinking up new ideas and being creative is important to her/him. She/he likes to do things in her/him own original way	Male	129	2.73	1.40	1.30
	Female	120	2.51	1.26	
2. It is important to her/him to be rich. She/he wants to have a lot of money and expensive things	Male	129	3.33	1.85	−4.85**
	Female	120	4.39	1.61	
3. She/he thinks it is important that every person in the world should be treated equally. She/he believes everyone should have equal opportunities in life	Male	129	2.02	1.09	1.453
	Female	122	1.80	1.22	
4. It is important to her/him to show her/him abilities. She/he wants people to admire what she/he does	Male	128	2.72	1.63	.04
	Female	121	2.73	1.54	
5. It is important to her/him to live in secure surroundings. She/he avoids anything that might endanger her/him safety	Male	129	2.39	1.61	1.28
	Female	120	2.14	1.42	
6. She/he likes surprises and is always looking for new things to do. She/he thinks it is important to do lots of different things in life	Male	129	2.22	1.29	2.93**
	Female	122	1.76	1.20	
7. She/he believes that people should do what they're told. She/he thinks people should follow rules at all times, even when no one is watching	Male	126	3.78	1.56	−2.88**
	Female	122	4.34	1.49	
8. It is important to her/him to listen to people who are different from her/him. Even when she/he disagrees with them, she/he still wants to understand them.	Male	128	3.96	1.57	−3.09**
	Female	122	4.56	1.48	
9. It is important to her/him to be humble and modest. She/he tries not to draw attention to her/him	Male	128	2.58	1.60	−.84
	Female	122	2.75	1.55	
10. Having a good time is important to her/him. She/he likes to "spoil" herself/himself	Male	125	3.26	1.71	2.84*
	Female	121	2.64	1.71	
11. It is important to her/him to make her/him own decisions about what she/he does. She/he likes to be free and not depend on others	Male	123	2.54	1.56	−1.43
	Female	116	2.83	1.49	
12. It is very important to her/him to help the people around her/him. She/he wants to care for their well-being	Male	125	2.20	1.20	.68
	Female	122	2.10	1.14	
13. Being very successful is important to her/him. She/he hopes people will recognize her/his achievements	Male	127	2.07	1.22	−.02
	Female	121	2.07	1.28	
14. It is important to her/him that the government ensures her/his safety against all threats. She/he wants the state to be strong so it can defend its citizens	Male	128	1.77	1.13	−.34
	Female	120	1.82	1.26	
15. She/he looks for adventures and likes to take risks. She/he wants to have an exciting life	Male	127	2.48	1.53	−.08
	Female	121	2.50	1.64	

Table 8.3 (continued)

1 = not like me at all, 6 = very much like me	Sex	N	Mean	SD	t
16. It is important to her/him always to behave properly. She/he wants to avoid doing anything people would say is wrong	Male	124	2.47	1.48	−.80
	Female	120	2.63	1.58	
17. It is important to her/him to get respect from others. She/he wants people to do what she/he says	Male	126	2.94	1.49	−2.43*
	Female	117	3.42	1.62	
18. It is important to her/him to be loyal to her/his friends. She/he wants to devote herself/himself to people close to her/him	Male	125	2.16	1.21	−1.94
	Female	121	2.49	1.43	
19. She/he strongly believes that people should care for nature. Looking after the environment is important to her/him	Male	128	2.45	1.33	−.54
	Female	118	2.55	1.51	
20. Tradition is important to her/him. She/he tries to follow the customs handed down by her/his religion or her/his family	Male	128	2.86	1.52	−1.94
	Female	121	3.23	1.50	
21. She/he seeks every chance. She/he can to have fun. It is important to her/him to do things that give her/him pleasure	Male	128	2.18	1.26	.18
	Female	121	2.15	1.42	

$^*p. < .05$; $^{**}p. < .01$

Conclusions and Recommendations

The preceding results tell us that there may be a change in the Arab culture as far as self-evaluation is concerned (Abu-Hilal & Al-Malki, 2014b). Much of the research published on self-evaluation was based on data collected in the twentieth century. During those days, a good number of Arab children were raised by parents who were illiterates or semi-illiterates. Media, in general, and social media, in particular, were not as available and prevalent as today. Previously girls were more conformist, less confident, and less expressive than they are in the present time.

The Arab-Moslem culture is at a crossroad. Arab-Moslem individuals are also in a transition. Future research should focus attention on Arab-Moslem individuals' orientations, preferences, attitudes, and personalities. New research should compare these and other variables across communities in the Arab societies and compare these variables between Arab-Moslem samples and samples from other cultures. Also, it is important to obtain empirical evidence as how Arab-Moslems perceive and interpret events around them and how they attribute these events.

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Chapter 9
Theoretical and Psychometric Review of Arabic Teachers' Self-Efficacy Beliefs Research

Said Aldhafri

Abstract This chapter reviews existing research in teachers' self-efficacy beliefs using Bandura's social cognitive theory as a theoretical framework in the Arab context. The chapters aim to (1) examine the psychometric properties of the available scales of teachers' self-efficacy beliefs when used in the Arabic context, (2) analyze the findings related to the levels of Arabic teachers' self-efficacy beliefs and its correlates with a focus on its impacts on learners' outcomes, (3) and outline future research directions that can help advance the research of teachers' self-efficacy beliefs particularly in the Arabic context. The scope of the chapter covers published research in teachers' self-efficacy that used participants from Arabic-speaking countries. The researcher's own recent data were analyzed. The work of international researchers (including the work of Dr. David Watkins) was incorporated to achieve the goals of the chapter.

Introduction

Teachers' self-efficacy beliefs reflect the beliefs that a teacher holds about his/her ability to reach significant effects on his/her students' learning-related outcomes. Cumulative theoretical and empirical research articles argue about the importance of teachers' efficacy beliefs on forming both teachers' and students' learning behaviors and ensuring positive school outcomes. Over 40 years of research in teachers' self-efficacy beliefs was based largely on Bandura's social cognitive theory framework (1997), while part of it was linked to Rotter's locus of control theory (1966). The variation on conceptual frameworks that researchers used in investigating teacher self-efficacy beliefs yielded differences on the measures used to examine this important construct, the dimensions proposed to capture its latent variable, and

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the interpretation of the obtained factorial structure across different samples and measures.

The aim of this chapter is to examine Arabic available research that focused on teachers' self-efficacy beliefs in terms of its measurement, levels, correlates, and its impacts on students' outcomes. The chapter is divided into three parts. *The first part* analyzes the psychometric studies that examined the factorial structure of the efficacy measures used with Arab teachers. Some actual data collected by the researcher are examined as well. *The second part* examines the research findings that focused on the levels of Arab teachers' self-efficacy beliefs and the factors influencing this construct in the Arabic context in addition to the effects of efficacy beliefs on students' learning. The *last part* focuses on how research in teachers' self-efficacy beliefs can be advanced in the Arabic context and how Arabic researchers may benefit from the international research in the area of efficacy beliefs.

Method of Study Collection

In order to maximize the bulk of reviewed Arabic articles, the researcher tried to reach all published research in teachers' self-efficacy that included Arabic participants whether published in Arabic or in English. For the English-written articles, two research assistants did extensive online search using all databases available at Sultan Qaboos University main library. Examples of the search engines include, but not limited to, *Eric, PsychINFO, Scopus, and ProQuest*. For the Arabic-written articles, only one data set (i.e., *EduSearch*) is yet available for Arabic researchers that covers many of the Arabic journals. For both languages, other collection procedures were followed using *Google* search, some Arabic journal websites, and the websites of some Arabic universities.

The Identified Sample of Studies

The search process yielded a total of 32 studies that used Arab in-service ($N=28$) and preservice teachers ($N=4$) as a sample to investigate their efficacy beliefs. Most of these studies were published in Arabic with few studies published in English. No other publication language was examined for the purpose of this chapter. Most identified studies focused on regular teachers regardless of their subjects (e.g., Abu-Tineh & Al-Khalaileh, 2011). Some studies focused on specific subjects such as resource room teachers (Hejazi, 2013) and science teachers (Hassan & Tairab, 2012; Hassoonah, 2009). Few studies were identified with special education teachers such as teachers of autistic children (Al-Othmani & Al-Gonaimy, 2013) and teachers of students with learning disability (Aldhafri & Alkharusi, 2013; Aldhafri & Almamari, 2009, 2010; Alrajhi & Aldhafri, 2013). Two studies were done with preschool teachers (Aldhafri, 2014; Emam & Mohamed, 2011). In addition to in-service teachers,

many studies focused on preservice teachers' self-efficacy beliefs (Aabed, 2009; Almahrazi et al., 2011; Hassoonah, 2009). Even though the focus of this chapter is on the studies used by in-service teachers, preservice teachers' studies are discussed where appropriate.

The Measurement of Teachers' Efficacy Beliefs

Arabic researchers differ in their measures used in examining teachers' efficacy beliefs. These researchers also differ in their test adaptation and statistical analyses used to ensure score and measure comparability. While most researchers adapted existing efficacy measures, there were some trials to construct new measures of teachers' self-efficacy beliefs. This section discusses teachers' efficacy belief test adaptation, reviewing efficacy measures used in the Arabic studies and discussing the construct of teachers' self-efficacy beliefs as a possible global concept.

Adaptation of Teachers' Efficacy Belief Scales

To measure teachers' self-efficacy beliefs, most cited Arabic studies have adapted some existing Western measures such as the Teacher Efficacy Scale (TES, Gibson & Dembo, 1984) and the Teacher Sense of Efficacy Beliefs (TSES, Tschannen-Moran & Woolfolk Hoy, 2001). While early studies used the TES (e.g., Alblushi, 2002; Al-Nahar & Al-Rababea, 1992), more recent studies used the TSES (Abu-Tineh & Al-Khalaileh, 2011; Emam & Mohamed, 2011).

Arabic researchers differed in their test adaptation practices and reports of validation processes. Most of the reviewed studies indicated that there was one forward translation with arbitrator judgment of the usability of the measure to the Arabic context, particularly for the single country in which a study took place (e.g., Abu-Tineh & Al-Khalaileh, 2011; Al-Hinai, 2006).

Many previous studies have used Gibson and Dembo's (1984) Teacher Efficacy Scale (TES) that involved two dimensions resembling the two Rand items: Personal Teaching Efficacy (PTE) and General Teaching Efficacy (GTE). This scale has become the most widely used scale in assessing teachers' sense of efficacy (for review of previous studies that used the TES, see Tschannen-Moran & Woolfolk Hoy, 2001; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Because of the strong evidence of its reliability, different cultures have adopted the TES including the Arabic culture (e.g., Alblushi, 2002; Al-Nahar & Al-Rababea, 1992). However, a controversy has been raised about this scale among efficacy researchers (Guskey, 1998). It has also received some criticism (Deemer & Minke, 1999; Henson, 2001) as some researchers have argued against its GTE subscale calling for its exclusion (Henson, 2001; Henson, Kogan, & Vacha-Haase, 2001).

The Teacher Sense of Efficacy Scale (TSES) was developed to avoid the limitations of previous measures and to meet teachers' sense of efficacy as conceptualized in Bandura's theory. Tschannen-Moran and Woolfolk Hoy (2001) have created the TSES claiming that this measure is not so general as to lose its predictive power and not so specific to lack the potentiality to compare teachers across school levels and specializations.

A group of Arabic researchers recently used the TSES. These studies, however, did not examine the TSES validity beyond regular simple correlations with teacher-related variables and arbitrator judgment (e.g., Abu-Tineh & Al-Khalaileh, 2011; Al-Hinai, 2006). Only Aldhafri and Ambusaidi (2012) used both exploratory and confirmatory factor analyses in two consecutive studies. In the first study, the authors reported that EFA supported the three-factor structure with some cross-loading items. Convergent validity was reported by examining the relationship between the TSES and Rand 2 ($r = .33$, $p \leq .001$) and between the TSES and the TES ($r = .52$, $p \leq .001$). The relationship between the TSES and teaching anxiety ($r = -0.33$, $p \leq .001$) was negatively significant. Using both varimax and promax rotation methods, 44 % of variance was explained by the three factors.

In the second study, Aldhafri and Ambusaidi (2012) examined (605) female teachers' self-efficacy beliefs and used the CFA to examine the structural validity of the TSES. The researchers found good fit indices for the three factors (NFI = 0.983; IFI = 0.940; TLI = 0.933; CFI = 0.939; RMSEA = 0.044) that supported the findings from different cultures.

One Omani study attempted to construct a new efficacy scale for teachers based on some existing Western measures. Alajmi (2007) investigated the factorial components of Omani teachers' efficacy beliefs using factor analysis techniques. The researcher identified four factors that include efficacy beliefs for community engagement, classroom management, learning resources, and decision-making. With the exception of efficacy for decision-making that was proposed by Bandura (2001) but not examined, the other three components had been identified in other Western measures.

Teachers' Efficacy as a Global Construct

The adaptation of the teachers' self-efficacy scales to teachers from different cultures was dominated by the researchers taking the questionnaires as they are, using them to collect data, and then examining their factorial structures using mostly confirmatory analysis techniques. Many researchers concluded that the factorial structure of the TSES is consistent across different cultural and national data sets. This conclusion affirms the internationality of the teachers' self-efficacy belief construct using both the short and the long versions of the TSES (Klassen et al., 2009).

In an attempt to examine possible cultural differences, the researcher developed a short version of the TSES based on Omani participants' responses to the long version of the TSES. Consistent with the techniques used in the original study of

Table 9.1 Fit indices of the two versions of the TSES

Model	df	χ^2	χ^2/df	RMSEA	CFI	GFI	AGFI	NNFI	St. RMR	AIC
ETSES	51	185.59***	3.63	.04 (90 % CI = .04 − .05)	.96	.97	.95	.95	.03	83.59
ATSES	51	252.98***	4.96	.06 (90 % CI = .05 − .06)	.95	.96	.94	.93	.03	150.98

Note. *ETSES* 12-item of TSES adapted from Tschannen-Moran and Woolfolk Hoy, 2001, *ATSES* 12-item of TSES shortened from Omani-based data, *CFI* comparative fit index, *GFI* goodness-of-fit index, *AGFI* adjusted goodness-of-fit index, *NNFI* non-normed fit index, *St. RMR* standardized mean-square residual, *AIC* Akaike information criterion
***p < .001

Tschannen-Moran and Woolfolk Hoy (2001), exploratory factor analyses and item-total correlations were applied to shorten the TSES. Items were gradually deleted to reach the parsimonious version possible. The developed short version of the TSES differs from the international short TSES version in four items related to the instruction and engagement subscales. Data from the two short versions of the TSES (the English and the Arabic versions) undergone confirmatory factor analyses, and fit indices were examined for the two versions. As can be seen in Table 9.1, the findings showed that both versions had high fit indices which suggest that both versions can be used by Omani researchers.

Teachers' Efficacy Beliefs and Its Correlates

Using the TES or the TSES, most Arabic studies have focused on identifying the levels of Arab teachers' efficacy beliefs and how these levels vary across demographic variables such as gender, subject, and years of experiences. In addition, these studies used correlational designs to understand the relationship between teachers' self-efficacy beliefs and other teacher-related variables. Very few, if any, examined teachers' self-efficacy beliefs in relation to student-related variables particularly students' achievement.

Teachers' Efficacy Belief Levels Across Demographic Variables

Most Arabic studies used self-report, 5-point Likert scales to examine the levels of teachers' self-efficacy beliefs and applied a one-sample *t*-test to compare the obtained means with the theoretical means (mostly 3.00). For example, Aabed (2009) found high levels of Jordanian preservice science teachers' self-efficacy beliefs for both subscales (expectancy outcomes and self-efficacy beliefs). Hassoonah (2009) found high PTE levels and moderate GTE levels for Palestinian preservice science teachers. Hejazi (2013) reported high levels of Palestinian

female teachers' efficacy beliefs. Similarly, Alblushi (2002) reported high levels of PTE and moderate levels of GTE for Omani teachers. Using the TSES, Albusaidi and Aldhafri (2009) reported high levels of teachers' self-efficacy beliefs for Omani teachers. Abu-Tineh and Al-Khalaileh (2011) found high levels of Jordanian teachers' efficacy beliefs across the three subscales. Aldhafri (2011a, 2011b) reported high levels of Omani teachers' self-efficacy beliefs.

The most widely used demographic variable in relation to efficacy beliefs in Arabic research is gender. No gender differences were found in PTE and GTE for preservice science teachers (Aabed, 2009) and Emirates science teachers (Hassan & Tairab, 2012). Similar findings were reported by Alblushi (2002) for Omani PTE. Using the TSES, no gender differences were found in efficacy beliefs for Omani elementary school teachers (Aldhafri, 2006a).

In contrast, gender differences were found in PTE and GTE favoring female students for Palestinian preservice science teachers (Hassoonah, 2009) and in GTE where female Omani teachers were found to have higher levels of self-efficacy than male teachers (Alblushi, 2002). Significant gender differences in PTE were found favoring female Jordanian teachers (Al-Nahar & Al-Rababea, 1992). Using TSES, female secondary teachers were found to be higher than males in their efficacy beliefs (Aljamal, 2012). Overall Western research shows gender differences favoring females especially in PTE (Anderson, Greene, & Loewen 1988; Coladarci, 1992; Coladarci & Breton, 1997; Evans & Tribble, 1986; Raudenbush, Rowan, & Cheong 1992; Taylor & Tashakkori, 1995) with some studies finding no differences (e.g., Housego, 1992; Hoy & Woolfolk, 1993).

Other demographic variables were also examined such as years of experiences. Hassan and Tairab (2012) found some statistical significant differences in GTE based on experience favoring high-experienced teachers. Al-Othmani and Al-Gonaimy (2013) reported significant differences in teachers' self-efficacy beliefs reporting high levels for those younger, those more experienced, those with more workshops, those who hold post-bachelor's degree, and those who work with moderate disability compared to other groups. Alblushi (2002) reported that more experienced teachers have higher PTE but no differences were found in GTE. Other studies showed insignificant correlation between PTE and years of experiences (Al-Nahar & Al-Rababea, 1992; Ghaith & Shaaban, 1999).

Using the short version (Aldhafri, 2011a, 2011b) or the long version of the TSES (Aldhafri & Perry, 2007), Omani teachers' efficacy beliefs correlated positively with their years of experiences. This connection was not found for Egyptian preschool and primary school teachers (Emam & Mohamed, 2011). High levels of efficacy beliefs for more experienced secondary teachers were also reported by Aljamal (2012) who used Bandura's scale. Using a different measure than the TES and the TSES, Alsalhi (2013) examined male Saudi teachers and found significant differences in teachers' self-efficacy beliefs favoring more experienced teachers.

The findings from Western research reported mix findings related to the connection between self-efficacy beliefs and years of experiences. While a group of studies showed no significant relationship between teacher PTE and years of experiences

(e.g., Coladarci, 1992; Edwards, Green, & Lyons, 1996; Hebert, Lee, & Williamson 1998; Soodak & Podell, 1996; Woolfolk, Rosoff, & Hoy, 1990), other studies indicated significant correlations between teacher experience and PTE (e.g., Hoy & Woolfolk, 1993).

Neither differences in teachers' self-efficacy beliefs were found based on subject (Aldhafri & Perry, 2007; Aljamal, 2012; Alsalhi, 2013), nor were differences found based on different sub-courses among science teachers (Hassan & Tairab, 2012) or educational qualifications (Aljamal, 2012).

The variation in the findings relating to gender effects can be attributed to some other related variables such as the level of schools (elementary, middle, or high schools, Mulholland & Wallace, 2001; Parkay, Greenwood, Olejnik, & Proller, 1988), the specific subject (such as math and science), and the type of measures. Future research should use more complex statistical designs that incorporate different demographic variables to understand the interaction among these variables in influencing the levels of teachers' self-efficacy beliefs.

Teachers' Self-Efficacy and Students' Learning

Research has examined the effects of teachers' self-efficacy beliefs on students' academic achievement and found significant direct effects on students' academic achievement as measured by students' scores in achievement exam (Anderson et al., 1988). The effects of teachers' self-efficacy beliefs on students' academic achievement might be direct as the aforementioned connection and might be indirect. The indirect effects of teachers' self-efficacy beliefs on students' achievement can be traced over the documented effects of teachers' self-efficacy beliefs on both teacher-related variables and student-related variables that may function as mediators of the effects of efficacy beliefs on students' academic achievement.

The Effects of Efficacy Beliefs on Teachers' Behaviors Research shows that teachers' self-efficacy beliefs affect students' achievement through their effects on teachers' behaviors and practices. Teachers' self-efficacy beliefs are found to influence their implementation of new teaching methods, the use of new classroom management tactics, and the use of suitable methods that promote students' independence in learning and self-control. High-efficacious teachers are more likely to be able to control the problems that occur in class and ensure that students are doing the required tasks (Allinder, 1994; Caprara, Barbaranelli, Steca & Malone, 2006; Cousins & Walker, 1995; Guskey, 1988; Jordan, Krcaali-Iftar & Diamond, 1993; Korevaar, 1990; Soodak & Podell, 1993).

An important factor that affects the improvement of education is teacher's implementation of new teaching methods. These improvements range from something as simple as changing some activities in the classroom to something as complex as changing the entire curriculum or teaching approaches (Ghaith & Shaaban, 1999). Across different cultures including the Arabic culture, research shows that the extent

to which teachers are willing to implement the new practices is influenced by many factors including their efficacy beliefs (Ghaith & Yaghi, 1997; Guskey, 1988). Significant connections were found between teachers' self-efficacy beliefs and their reform practices (Aldhafri & Perry, 2007; Ross, 1994; Smylie, 1988).

Focusing on Arabic teachers, researchers reported several connections between teachers' efficacy beliefs and their teaching and psychological variables. For example, significant correlations were found between math teachers' self-efficacy beliefs and their attitude toward teaching profession (Addardeer, 1997) and between Egyptian primary and preschool teachers' self-efficacy beliefs and their attitude toward inclusive education (Emam & Mohamed, 2011). Hejazi (2013) found significant correlation between Palestinian female teachers' self-efficacy beliefs and their professional adjustment and quality of life. Albusaidi and Aldhafri (2009) reported that 35 % of variance in teaching anxiety can be explained by teachers' efficacy beliefs. Aldhafri, Alkharusi, Alnabhani, and Alkalbani (2013) reported that 47 % of variance in Omani teachers' assessment practices could be explained by a model that contained teachers' self-efficacy beliefs and teachers' assessment efficacy beliefs.

Within special education teachers, Al-Othmani and Al-Gonaimy (2013) found significant positive relationship between autistic children teachers' self-efficacy and their attitudes toward these children. Aabed (2009) found that preservice teachers' efficacy related to their understanding of scientific concepts ($r=0.229$, $N=113$). PTE correlated significantly ($r=0.303$, $N=113$) while GTE did not relate. Negative correlations were reported between Omani preservice teachers' self-efficacy beliefs and their teaching anxiety (El-Okda & Al-Humaidi, 2003).

The Effects of Efficacy Beliefs on Students' Behaviors Research has found direct connections between teachers' self-efficacy beliefs and their students' achievement (Allinder, 1995; Anderson et al., 1988; Ashton, 1985; Ashton & Webb, 1986; Czerniak & Schriver, 1994; Moore & Esselman, 1992; Olivier, 2001; Raudenbush, Bhumirat, & Kamali, 1992; Raudenbush, Rowan, et al., 1992; Wenner, 2001; Woolfolk & Hoy, 1990). One Arabic study was identified that examined this connection. Addardeer (1997) found significant correlations between math teachers' self-efficacy beliefs and their students' math motivation, attitudes, and achievement.

In addition, teachers' self-efficacy beliefs influence students' academic achievement indirectly through their influences on students' psychological variables which, in turn, impact academic achievement. Cumulative Arabic and non-Arabic research found relationships between teachers' self-efficacy and students' motivations, self-esteem, self-direction, management of school transitions, self-efficacy, and classroom involvement (Al-Alwan & Mahasneh, 2014; Ashton & Webb, 1986; Borton, 1991; Midgley, Feldlaufer, & Eccles, 1989; Roeser, Arbreton, & Anderman, 1993). Most of these variables have not been examined to understand their mediating effects in the relationships between teachers' self-efficacy beliefs and students' achievement. Because the Arabic culture can generally be considered as a collectivistic culture (Triandis, 1989), other possible student-related variables can play an important role in students' achievement. An example of underrepresented variable

in the Arabic context is students' social goals that are found to have great impacts on students' achievement and academic engagement (King, McInerney, & Watkins, 2012; 2013; King & Watkins, 2012).

Development of Teachers' Efficacy Beliefs Even though this aforementioned research argues that teachers' self-efficacy beliefs influence students' achievement, it has been also suggested that the relationship between teachers' self-efficacy and students' achievement is mutual. The teachers in schools with "high-achieving and well-behaved students" have higher sense of efficacy because their students are successful in all the tasks (Caprara et al., p. 474). In a recent collected data using Omani participants (Aldhafri, in progress), teachers teaching in high socioeconomic status (SES) community had higher levels of self-efficacy beliefs than the teachers teaching in low SES community. As an indicator within the Omani context, the SES may reflect levels of parents' education, levels of income, and the social structure of a particular community. SES was also reported as a significant predictor of Omani teachers' self-efficacy beliefs over and above the effects of years of experiences (Aldhafri, 2011b). Similar findings of the effects of SES, students' behavior, and school atmosphere on teachers' self-efficacy beliefs were found by Western studies (Lee, Dedrick, & Smith 1991; Moore & Esselman, 1992; Newmann, Rutter, & Smith 1989; Selove, 1984; Taylor & Tashakkori, 1995).

In line with this research, several studies have examined factors influencing the development of teachers' self-efficacy beliefs mostly by correlational design with some few existing non-Arabic semi-experimental studies that examined the effectiveness of some programs on enhancing teachers' efficacy beliefs. No Arabic efficacy belief study was identified with experimental designs. Using regression analysis, Aldhafri (2011b) found that teachers' perceptions of school bridging strategies (as a component of school climate) were the strongest predictor of teachers' self-efficacy beliefs. Abu-Tineh and Al-Khalaileh (2011) reported positive connections between Jordanian teachers' efficacy and perceptions of their principals' leadership practices. Similarly, Aldhafri and Ambusaidi (2012) found a positive and significant correlation between teachers' self-efficacy beliefs and teachers' collective efficacy. In their review of 218 efficacy articles over a decade, Klassen Tze, Betts, and Gordon (2011) concluded that there is still lack of research focusing on the sources of teachers' self-efficacy beliefs.

To conclude, teachers' self-efficacy beliefs can have potential effects on Arab students' learning through its effects on both teachers' and students' behaviors. The context specificity of teachers' self-efficacy beliefs may represent an important aspect to examine with regard to Arabic students' learning. For example, teachers' beliefs of their abilities to communicate with parents and interact positively with families may have great impacts on students' learning in a society that value in-group connection and collective identity. Comparing Omani and Canadian teachers' motivation to teach, Klassen, Aldhafri, Hannok, and Betts (2011) concluded that Omani teachers indicated higher levels of sociocultural influences than Canadians who made more self-references and individual-focused motivation to teach. This variation in teachers' motivational and efficacy beliefs across cultures is likely to reflect differently on their students' learning.

Future Research Directions

Based on early review of Arabic and non-Arabic studies (Aldhafri, 2006b), it is suggested that the construct of teachers' self-efficacy manifests itself in a similar way across different cultures when using the TES. With the increasing use of the TSES and other individual measures, there is cumulative evidence that teachers' self-efficacy is a global construct that interacts across different cultures with similar sets of student and teacher variables.

It is possible, however, that more specific cultural variables may influence the development, levels, and function of teachers' self-efficacy beliefs. Indeed, the structure of Arabic teacher education programs, the nature of the teacher-student relationship, the perceptions of teacher-parent communication, and the overall educational system in the Arabic cultures may unveil some possible cultural differences in the construct of teachers' self-efficacy beliefs. For example, a possible uninvestigated resource for cultural differences in the development of teachers' self-efficacy beliefs stems from the fact that most schools in the Arabic world are single-sex schools, while in the West mixed schools are the dominant. This structure of schools may influence the school climate which was found to predict teachers' self-efficacy beliefs (Aldhafri, 2006b). However, as Klassen et al. assert, "without an explicit cross-cultural comparison providing evidence; the conclusions about cultural similarities or differences are founded on speculation" (2011, p. 34).

Because most Arabic studies are published in Arabic journals, the contribution of these studies to the efficacy belief literature is limited with the exception of two widely cited Arabic studies in the English efficacy literature (Ghaith & Shaaban, 1999; Ghaith & Yaghi, 1997). The few studies that examined the psychometric properties of the TSES or suggested new scales were all published in Arabic. An immediate step is needed to increase Arab efficacy publications in the English journals.

One plausible factor behind the lack of research of other cultures (like the Arabic culture) is the measurement and conceptual challenges linked to cross-cultural research (see for review, van de Vijver & Leung, 2000). Whereas efficacy beliefs (Redhwan, 1997; Scholz, Gutiérrez-Doña, Sud, & Schwarzer, 2002; Schwarzer, n.d.) have been regarded as universal phenomena, this conclusion is faced by the challenges related to the issues of psychological universals in cultural psychology (Norenzayan & Heine, 2005). The increasing interest in constructing new efficacy measures for different populations in the Arabic culture (e.g., for school principals, see Aldhafri, 2008; for teachers of students with learning disabilities, see Aldhafri & Almamari, 2010; for preschool teachers, see Aldhafri, 2014) should encourage additional research in efficacy beliefs.

In addition to the need for increasing number in general teachers' efficacy belief studies, there is scant research in teacher-specific efficacy beliefs such as decision-making efficacy beliefs (Jin, Ye, & Watkins, 2012) and subject-specific efficacy beliefs such as math (Swackhamer, 2010) and science efficacy beliefs (Aurah & McConnell, 2014). Arabic researchers also need to expand their efficacy beliefs

research to cover other populations. Up to date, good research has been conducted in students' academic efficacy beliefs (Aldhafri, 2011a; Aldhafri, Alkharusi, Alrajhi, Alnabhani, & Alkalbani, 2014; Al-Harthy & Aldhafri, 2014; Aljabori, 2013; Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2013; Alzeq, 2011), with little research examining counselors' self-efficacy (Al-Darmaki, 2004, 2005a, 2005b), school principals' efficacy (Aldhafri, 2008), senior teachers' efficacy beliefs (Aldhafri, 2007), teachers of students with learning disabilities (Aldhafri & Almamari, 2010), university instructors' efficacy beliefs (Almiali & Almusawi, 2011; Assaied, 2013), and collective efficacy beliefs (Aldhafri, 2006b).

Arabic researchers need to attend to different statistical techniques and adaptation methodologies to ensure construct comparability of the efficacy belief measures (see for details, Byrne & Watkins, 2003; Ercikan, 2002; Ercikan & McCreith, 2002; Hambleton, 2005). Furthermore, this research should incorporate more advanced statistical analyses and methodological designs that allow for solid conclusions about the intercorrelations among teachers' efficacy beliefs and student- and teacher-related outcomes. In particular, there is an urgent need for experimental studies that build and examine the effectiveness of training programs to enhance teachers' efficacy beliefs across different school settings.

One important limitation of the current chapter is that no claim can be made that the list of Arabic studies included in this chapter is inclusive. No comprehensive Arabic database is yet available, and it is possible that some studies are published in languages other than English and Arabic, especially by Arabic researchers living in North African countries.

To conclude, considering teachers' self-efficacy as a vital component of effective school makes it important to continue examining its connection with student and teacher behavior in the Arabic context. Bandura (1993) writes that "the task of creating environments conducive to learning rests heavily on the talents and self-efficacy of teachers" (p. 140). A call is directed to Arab and non-Arab researchers to conduct additional research especially in cross-cultural research designs.

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Chapter 10
The Role of Self-Efficacy and Connectedness in the Academic Success of Chinese Learners

Ricci W. Fong and Man Tak Yuen

Abstract Chinese learners have frequently demonstrated academic achievement that outshines their Western counterparts—but paradoxically research has suggested that various nurturing, teaching, and learning conditions in the Chinese context are often believed in the West to be unfavorable to learning. Against this background, the chapter revisits this paradox by drawing upon research and current theories of motivation and learning. Through a cultural lens, the authors discuss pertinent personal and social-contextual factors influencing Chinese learners' academic success. In particular, attention is directed to learners' self-efficacy and connectedness. The chapter offers a picture of how Chinese learners are actually nurtured and identifies some culturally sensitive notions in the research literature. The arguments here should alert researchers and practitioners to some key cultural differences when interpreting research and practice.

Introduction

For decades, Western educators have been intrigued by the outstanding academic performance of Chinese learners in international assessments such as the *Trends in International Mathematics and Science Study* (TIMSS), the *Progress in International Reading Literacy Study* (PIRLS), and the *Programme for International Student Assessment* (PISA). This situation has aroused great interest, because many of the influences that are regarded in the West as potentially detrimental to students' academic achievement and motivation (such as authoritarian parenting, large class

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sizes, and rote learning) appear instead to have a *positive* influence on Chinese learners (Watkins & Biggs, 2001). From a Western perspective, this peculiar phenomenon has become known as "the paradox of the Chinese learner"—a term first introduced in the seminal work of Watkins and Biggs (1996). Since that time, the topic has continued to drive the close study of Chinese learners and their characteristics. Over the decades that followed the publication of the book by Watkins and Biggs, researchers attempted to explore how it can be that Chinese learners excel beyond their Western counterparts when in fact they experience parenting and teaching approaches that, in theory, should have the reverse effect on school achievement.

Although teaching approaches are very gradually changing in East Asia, the classrooms in which Chinese students are taught typically still employ mainly teacher-directed instructional methods, a highly academic curriculum, and rote learning. The norm is still represented by lessons where the teacher "lectures" and then sets standard practice activities for the students. Maximum attention is devoted to preparation for tests and examinations. Class sizes are still large, and little or no effort is made by most teachers to differentiate teaching according to their student's ability levels and aptitudes; and often students' weaknesses are criticized rather than their strengths praised (Chan, Chang, Westwood, & Yuen, 2002).

At home, these students typically experience authoritarian parenting—with parents more likely to offer criticism rather than praise. Authoritarian parenting and high expectations have been linked in some studies with a tendency for learners to develop "unhealthy" perfectionism (setting unrealistically high goals), which can be associated with a wide range of social-emotional problems (Castro & Rice, 2003; Chang, 1998; Kawamura, Frost, & Harmatz, 2002). The strong emphasis placed in most Chinese families on children studying hard, spending many hours on homework, and aiming for academic excellence also runs counter to the essence of Western theories that value positive encouragement, freedom, and family support to maintain students' self-regard and intrinsic interests (e.g., Ryan & Deci, 2000). According to theories and research from the West, all these negative school and family factors in Chinese contexts should have an adverse effect on learners' personal and academic development rather than producing learners who are high achievers (e.g., Baumrind, 1991; Fu & Markus, 2014; King, McInerney, & Watkins,2012).

In order to explore this paradox, research efforts over the years have focused on identifying correlates associated with ethnic differences in academic performance. For a while, it was even suggested that Asian students (and Asian-Americans) had a *genetic* advantage over Caucasian students, but later no evidence was found to support this view, and the myth of the "Asian math gene," for example, was rebutted (Bracey, 1999).

From a different perspective, Morrison (2006) has even argued that there may actually be *no paradox*, because what is dysfunctional in one cultural context may actually be functional in another. Perhaps Chinese learners simply respond better than learners in the West to strict learning conditions and a teacher-directed approach.

According to Tran (2013), another myth that needs to be exposed is the notion that Asian learners are entirely passive and rely on memorization rather than deep understanding of subject matter and concepts. In many cases this is manifestly not true, and it may represent a misreading by Western eyes of culturally conditioned classroom behaviors.

It is important to be aware how interpretations of some phenomena differ between the East and West. This applies to both the observations that may be made in classrooms and in the reading and interpretation of cross-cultural research reports (e.g., Byrne & Watkins, 2003; King & Watkins, 2013). Attending to cultural differences may sound like bowing down to political correctness, but in fact, it is essential to be aware of the differences when reading the literature or devising educational reforms and policies and when reaching conclusions about key influences on students' learning. Differences in interpretation can easily cloud judgments on how learners *should* learn and how teaching *should* be styled.

Given the relatively advanced state of research development in the West, a considerable proportion of research literature across disciplines is still based in Western contexts. For this reason, it is tempting for researchers and practitioners to see things through a familiar Western lens. Instead, we would like to underscore that culturally sensitive notions need to be taken into account in order to compare variables in different societies. In the same way, practitioners should also be alert to the potential pitfalls of applying Western ideologies and practices in Chinese classrooms (Watkins, 2000). This chapter thus attempts to offer researchers and practitioners a Chinese lens to investigate how Chinese learners succeed in their academic pursuits by the Chinese way as Chinese values and social conventions are translated to influential personal attributes in Chinese learners. Given the strong interdependence between self and others in Chinese society, our discussion will focus on the personal and social-contextual factors pertinent to the academic success of Chinese learners. Nevertheless, to offer a more holistic picture, we will begin with a concise overview of the cultural and pedagogical influences that contribute to the paradox of the Chinese learner (Watkins & Biggs, 1996, 2001).

Confucian Influences

From the beginning of studies in this topic, the paradox of Chinese learner has been discussed in relation to what is known as the Confucian heritage culture (CHC) (Watkins & Biggs, 1996, 2001). Countries such as China, Japan, Korea, Singapore, and Vietnam are considered to have a Confucian heritage. CHC influences are seen in basic concepts such as human perfectibility, a belief that personal effort and willpower can overcome differences in ability, and the educability of all persons (Lee, 1996). The contribution of hard work and sustained effort is certainly reflected in conclusions reached by Hsin and Xie (2014) to account for Asian-American students' high achievement. These Confucian values may represent cultural attributes that, in part, underpin

the *strong work ethic* of Chinese students. As Biggs and Watkins (2001, p. 278) observed:

> While CHC systems have large classes, seem highly authoritarian, and are examination oriented, it may well be that the expectations and perceptions held by those students would create a different effect from that which those same characteristics would have on students in a Western system with different expectations. Indeed, the high performance of CHC students indicates precisely this.

Pedagogical Influences

Just as interest grew in identifying key attributes of Chinese learners, so too interest has been shown in exploring more closely the exact nature of the teaching methods used in Asian classrooms (e.g., Lingbiao & Watkins, 2001; Stigler & Hiebert, 1999). These methods are commonly criticized by educators in the West as being too rigid. In particular, such approaches fail to produce autonomous, critical, and creative learners. But perhaps the stereotype authoritarian and inflexible teacher is also a myth; and perhaps the way that methods are carefully structured and delivered is part of the reason for Chinese students' high achievement. Certainly that was the conclusion reached by Stevenson and Stigler (1992) in relation to Japanese classrooms, where achievement levels are also very high. The evidence seems to indicate that in many Asian countries, teachers' professionalism, subject knowledge, and expertise exceed that of typical teachers in Western countries (Groth, 2011; Stigler & Hiebert, 1999). Growing respect for Asian pedagogy is reflected in the fact that a team of 60 teachers from high-performing schools in Shanghai are being employed in the UK in 2014 in an attempt to promote Chinese-style teaching methods within the state education system (Paton, 2014).

One key feature of Chinese classrooms is the importance placed on intensive practice. Although the idea of "practice makes perfect" is also present in Western culture, Chinese teachers have accentuated the importance of such practice to ensure mastery of all skills and subject matter. Drilling practices are still used (to a much greater degree than in the West), and frequent assessments of students' learning are made. The learners themselves regard these drilling practices as helpful in preparing them for academic challenges (Dahlin & Watkins, 2000)—"one's ability grows with effort"—and Chinese learners believe that intellect will diminish over time if not put to hard work (Fong & Yuen, 2015). In general, Chinese students spend much more time than their Western counterparts on school work (Hardway & Fuligni, 2006). With the strong belief in the value of time and effort, these learners appreciate the clear and achievable steps required to attain excellence (Chan, 2012).

Regardless of the teaching approaches that are used in any country, there are important personal and sociocultural factors that determine how strongly an individual student is motivated to learn, how strongly he or she believes in their own ability to succeed, and how actively that individual is supported and encouraged in

family and school. These influences may in fact be much greater than the importance of any single teaching approach.

Personal and Social-Contextual Factors

Individuals' self-perception is one factor that influences the motivation to expend time and effort in the academic domain. Working hard and believing in one's own ability may well be the personal variables most responsible for ensuring Chinese learners' high achievement (Fong & Yuen, 2015; Hsin & Xie, 2014; Li & Yue, 2004). The Confucian value of working long and hard to overcome obstacles and achieve personal goals can only be realized if the individual believes in his or her own capabilities (self-efficacy). Often these beliefs are fostered first within the families of Chinese children; and from an early age, they are encouraged to think that they can succeed in life. They are socialized to strive for a "better self" and for high achievement (self-perfection) by putting in sustained effort. Under the influence of CHC, parents are responsible for socializing their children to fulfill family expectations, achieve well academically, and conform to socially desirable norms and moral values. A child who does not do well in school would bring shame to the family. Conceptions of effort and self-perfection, alongside the value of learning and benefiting from mistakes, are internalized by Chinese children as early as the primary school years.

In a study in Hong Kong, Chinese primary students with high academic performance defined an "ideal learner" as one who is diligent, polite, and respectful to teachers, can persevere in the face of setbacks, has high academic achievement, is obedient to parents, and has love for parents (Fong, 2012). These comments lend support to the cultural model of learning proposed by Li (2002) that stresses the Chinese maxim "heart and mind for wanting to learn" (好學心). Li found that Chinese university students perceived ideal learners to be determined, diligent, prepared to endure hardships they routinely encounter, study hard regardless of favorable or difficult learning conditions, and are motivated to improve themselves.

Self-Efficacy

Belief in one's own capability is referred to in psychology as "self-efficacy" (Bandura, 1997). Many motivation and learning theories acknowledge the important role of self-efficacy for learning and emotional adjustment (Multon, Brown, & Lent, 1991; Ryan & Deci, 2000). In goal orientation theory (Ames, 1992; Maehr & Midgley, 1991), for instance, individuals who aspire to mastery of new learning are keen to find ways to develop skills and are more likely to seek help, perceive positive social relations, and attain higher achievement (Blackwell, Trzesniewski, & Dweck, 2007; Patrick, Kaplan, & Ryan, 2011). Students who believe in their

capabilities and strive to do well demonstrate more engagement and greater resilience in the face of difficult situations. In school, individuals who perceive themselves as competent in a subject are more receptive to helpful information and are more motivated to refine their skills. Studies have found that students with high self-efficacy are less vulnerable to setbacks as they are confident they will be able to improve their performance (Usher & Pajares, 2008). Positive self-efficacy acts as an incentive which galvanizes an individual to persevere in challenging tasks and thus influences the amount of effort expended and the level of achievement (Usher & Pajares, 2008; Zeldin & Pajares, 2000). Self-efficacy enables a learner to move closer to fulfilling his or her innate potential.

In the domain of gifted education, for example, the Actiotope Model (Ziegler, 2005; Ziegler & Phillipson, 2012) underscores the importance of raising gifted learners' awareness of their own ability to develop their talents to the full and achieve exceptional performance. The belief that one is able to improve and become even more successful then influences how motivated one is to increase the amount of effort and time invested in practice. It is a crucial dimension in individuals' pursuit of excellence. The belief that things can be changed for the better with increased effort is associated with the way that Chinese gifted learners pursue academic excellence (Chan, 2012). With a growth mindset, learners will be more willing to reflect upon the mistakes they made and come up with constructive strategies to meet their high, but realistic academic goals.

Researchers have attempted to determine whether Chinese learners have higher measured self-efficacy than Western learners. In view of the impressive achievements of Chinese learners and a strong association usually found between self-efficacy and academic achievement in other cultures, it is surprising to note that studies have actually found *lower* levels of measured self-efficacy reported among Chinese students (Eaton & Dembo, 1997; Wang, Schwab, Fenn, & Chang, 2013). One explanation may be that the Chinese cultural emphasis on effort and ever-higher performance expectations causes Chinese students to underestimate or misjudge their true capabilities. No matter how hardworking they are, they may feel that there are always others who are performing better. But another factor may be that the emphasis placed by parents and teachers on children always showing humility and modesty could condition Chinese learners to downplay their competence when asked to rate themselves in interviews or on questionnaires. This could be another example of a cross-cultural misinterpretation of obtained data. Hypotheses and interpretations of phenomena based in a different cultural setting should be made with caution. Although Chinese learners may perhaps perceive lower self-efficacy, it has been suggested that the impact of self-efficacy is actually stronger on members of individualistic cultures in the West than on Chinese learners in a collectivist society (Chen, Chan, Bond, & Stewart, 2006). Learners' perceptions of self-efficacy may also differ, according to their ability level. A study in Hong Kong by Yuen, Gysbers, Chan, Lau, and Shea (2010) found that gifted learners tend to have higher self-efficacy than their peers. Chan (2006) considered that this

self-efficacy serves to buffer any adjustment problems or psychological distress that gifted students might otherwise experience.

Connectedness to Family

Another vital ingredient that supports learning and motivation is a student's "connectedness" to family—the feelings of being genuinely valued and supported by other family members. Connectedness of children to their family is a major factor that distinguishes collective from individualistic cultures (Dwairy & Achoui, 2010).

Chinese learners rely a great deal on their connectedness with family and important others to strengthen their self-esteem and spur them on to greater heights. In this respect, Chinese learners recognize that striving for academic excellence is a family obligation as much as a personal goal. As Kashdan and Yuen (2007) suggest, Chinese learners regard attaining academic achievement as their most important duty; and this goal to achieve is both personal and social (Chan, 2008, 2009; Hau & Salili, 1991; King, McInerney, & Watkins, 2010, 2013; Wang, Slaney, & Rice, 2007). Apart from the will to become a more competent self, the aim to meet social expectations and foster the connectedness with important others also steers Chinese learners to pursue increasingly higher performance standards. Meeting social expectations is an internalized duty of Chinese learners. The feeling that one is socially and emotionally connected to family, teachers, and peers fuels Chinese learners' confidence (self-efficacy) in exercising their academic skills and attaining high achievement. Cohesive and supportive relationships within families help nurture students' talents in academic skills, creativity, and leadership (Chan, 2005; Yuen et al., 2010).

Contrary to the Western misconception of authoritarian Chinese parenting and harsh training, Chinese parents actually provide love and support as well as motivation (Chao, 1994, 2000). Parental emotional support is an effective buffer that modifies the potentially negative impact of parental criticisms and high expectations on learners' psychological well-being (Yoon & Lau, 2008). Studies have found that Chinese parents generally spend more time and direct effort on their children's education compared to Western parents (e.g., Chao, 2000; Ran, 2001), helping to solve school-related problems, checking daily home assignments, arranging the study routines after school, and helping the child prepare for academic assessments. Chinese parents involve themselves in these tasks out of love and concern for their child, not for reasons of economy related to the child's future career development. While differences between Chinese and Western parenting styles have to a large extent been seen as a black and white, Chinese parenting at its core is certainly not as "black" as it is often painted. Some aspects of the family environment of Chinese learners (e.g., strict control, high expectations, work ethic) may not seem so appealing in a Western context, but they do play a facilitative role in the endeavors of Chinese students.

Families that exercise high levels of control over their children, with clear sets of rules to follow and a high level of academic orientation, tend to nurture "healthy" perfectionists who possess high personal and academic self-efficacy and high self-esteem (Chan, 2012; Suh, Yuen, Wang, Fu, & Trotter, 2014; Wang et al., 2007).

Peterson, Cobas, Bush, Supple, and Wilson (2005) have remarked that parental control in Chinese families involves a degree of reasoning and monitoring which is less stringent than many Western researchers suggest. Parental support coexists with parental control. The support dimension predicts the autonomy that many Chinese learners get from their parents but at the same time reinforces their willingness to conform to their parents' expectations.

The high level of parental involvement in Chinese learners' developmental journey also translates into familial bonding, which alongside learners' connectedness to their teachers and peers serves as a safety net to support their emotional well-being (Sun & Hui, 2007; Yuen et al., 2010). Academically gifted primary students in Hong Kong acknowledge their parents' contribution to their study and development and consider their parents' strictness, criticisms, and control are all done for their future academic and career success. Family is therefore a crucial resource for Chinese learners to improve their academic skills and strive for high achievements. What bothers many students when they get poor marks is the disappointment that they cause their parents who love and care for them (Fong & Yuen, 2015).

An interesting aspect of Chinese parenting is the constructive view taken of mistakes that students make in their work or their reasoning. Western parenting practices focus most on not obsessing about errors but instead maintaining and enhancing learners' confidence by giving encouraging feedback. Chinese parents and teachers on the other hand tend to focus on learners' weaknesses, believing that by recognizing and remedying mistakes, learners can improve their previous performance and make academic progress (Heine & Hamamura, 2007; Ng, Pomerantz, & Lam, 2007). Cross-cultural studies have found that Chinese parents shape the way their children perceive success and failure. They insist that children should remind themselves that they still have more to learn and ways to improve despite their current success. In instances of failure, they should seek to learn from others and correct themselves. In this manner, Chinese learners are socialized to become sensitive to mistakes and to use them as a route to ongoing improvement. Such sensitivity is believed to help them work on their weaknesses, giving them an edge over other students (Eaton & Dembo, 1997). Chinese learners' response to mistakes and failures is pivotal to the formation of their academic confidence (Fong & Yuen, 2015).

Employing factor analysis on data collected from a sample of 599 academically gifted students in Hong Kong, Fong and Yuen (2011) found that students' concerns over their failures appeared to be a positive dimension of perfectionism. In a follow-up qualitative study in which 4th to 6th graders were interviewed, Fong and Yuen (2015) found that they all quoted the Chinese saying, *failure is the mother of success*. The beliefs that failure precedes success (失敗乃成功之母) and that making mistakes is an inevitable process of self-improvement are ingrained in the young minds by parents and by teachers. This may well be a contributory factor in the high achievement of Chinese learners.

Connectedness to School

In addition to the contributions from one's family, learners in the West and the East also benefit from their close affiliations with teachers and peers through enhanced learning opportunities, practical academic advice and support, as well as emotional encouragement (Chhuon & Wallace, 2014). A feeling of connectedness to school has been found to influence students' achievement in a positive direction (Lohmeier & Lee, 2011; McNeely, Nonnemaker, & Blum, 2002). According to the Centers for Disease Control and Prevention in the USA (2014), students who feel connected to their schools are more likely to have better academic achievement, better school attendance, and stay in school longer.

In Asian schools, there is also growing recognition of the need to help students feel valued and supported in their schools as part of fostering their "whole-person" development. Chinese students themselves are well aware of the importance of feeling connected and how this benefits their motivation and academic success (Yuen et al., 2012). Their relationships with teachers and peers and their feelings toward the school as a whole, alongside the opportunities available for cultivating achievement and leadership, can concertedly contribute to their feeling of connectedness to the school. In turn, this sense of connectedness makes students more willing to go to school. Their self-confidence which is essential for learning is also boosted.

Conclusions

It can be seen from the above discussion that self-efficacy and connectedness to family and school are among the variables that contribute greatly to Chinese learners' quest for academic excellence. These factors are mutually supportive, in that connectedness is fundamental to the growth of students' confidence (and vice versa) and enhances their will to perfect their performance.

Of course it is true that self-efficacy and connectedness to family and school are also recognized as important to students' academic development in the West; but there are subtle cultural differences in notions of "self," "effort and efficacy," and "social connectedness" in a Chinese context, and these carry different connotations.

When Chinese teachers and parents believe that all students have the ability to succeed in school, the belief is conveyed actively to the students. It becomes a self-fulfilling prophecy, as adults believe in children's ability to do well so the children in turn believe in themselves and therefore work hard to succeed. Working hard and long and with intrinsic motivation are some of the more important factors that could account for Chinese students' success.

Teaching methods in Chinese classrooms are often very negatively appraised by observers from the West, because they appear to embody features that are viewed as detrimental to the learning and emotional adjustment of students. Perhaps this is an example of using a Western cultural lens to pass judgment on teaching practices in

a different country. Against criticisms of Asian methodology is the obvious evidence that, in this Asian context, these teacher-directed methods appear to produce high success rates—hence the paradox of the Chinese learner.

This situation can be contrasted with that prevailing in the West, where popular student-centered methods employed in the past few decades have not been successful in raising standards in literacy, numeracy, and science—yet these student-centered approaches continue to be proffered as the solution to educational problems and for raising academic standards (Elliott, 2014). Perhaps it is not surprising there are signs that the West is beginning to turn to the East for inspiration concerning effective teaching models (Paton, 2014). The message here is probably that while schools in the West may benefit from integrating more of the whole-class teaching strategies from the East, it is equally probable that schools in the East would benefit their students' learning by integrating more student-centered activities into their traditional way of teaching (Fok & Watkins, 2007). Educators can learn a lot from both Chinese and Western theories of learning and teaching—from a cultural perspective, "one size definitely does not fit all."

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Part IV
Approaches to Learning

Chapter 11
Understanding and Teaching the Chinese Learner: Resolving the Paradox of the Chinese Learner

David Kember

Abstract I started working in Hong Kong in 1987. David Watkins arrived at the University of Hong Kong shortly after. At the time there were some very negative perceptions of the way Chinese students approached learning tasks, but little in the way of credible research into the topic. This chapter tries to tell the story of how a better understanding was gained of the body of research which was often referred to as the 'paradox of the Chinese learner'. Chinese students were perceived as employing learning approaches which had been associated with poor learning outcomes in Western research. Yet international comparison studies showed Chinese students performing very well.

A group in Hong Kong were interested in gaining a better understanding of Hong Kong students through research following the students' approaches to learning paradigm. Much of the research aimed to improve student learning outcomes through helping teachers design teaching and learning in such a way as to promote meaningful learning outcomes. This brings in the chapter's second focus of teaching the Chinese learner, which gives the chapter a practical focus as the insights gained from the research should help teachers better understand how to bring out the positive side of Chinese, and possibly other Asian, learners.

Two strands of evidence are advanced to explain the paradox. Research in Hong Kong and China has uncovered evidence of a set of approaches to learning, intermediate between pure surface and deep approaches, which combine memorisation and understanding. Observations of Chinese students apparently attempting to memorise material could have been misinterpreted as rote memorisation, when in fact the memorisation was combined with attempts to reach understanding and was therefore not a surface approach. When Chinese students do employ a surface approach, it is likely to be a response to perceptions of contextual factors in the teaching and learning environment, rather than as a characteristic of a cultural group or a predominant regional trait.

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Introductions

I started working in Hong Kong in 1987. David Watkins arrived at the University of Hong Kong shortly after. There was a group of us, including Richard Armour, John Balla, John Biggs and Lyn Gow, interested in gaining a better understanding of Hong Kong students through research following the students' approaches to learning (SAL) paradigm.

At the time there were some very negative perceptions of Chinese learners, but little in the way of credible research into their learning characteristics. This chapter tries to tell the story of how a better understanding was gained of Chinese learners. Much of the research aimed to improve student learning outcomes through helping teachers design teaching and learning in such a way as to promote meaningful learning outcomes. This brings in the chapter's second focus of teaching the Chinese learner.

The Paradox of the Chinese Learner

Perhaps the most commonly advanced perception of Chinese students is that they have a greater tendency towards rote learning than their Western counterparts. The observation has been widespread in anecdotal form, but affirmations in print are also quite common. I see no point in extensively reviewing this literature as I intend to draw upon the research which suggests that it is largely a misperception. The following quotation, from the official minutes of a course planning committee in one of the universities in Hong Kong, is sufficient to establish how entrenched negative perceptions of Chinese students were at the time we started our investigations:

> Students in Hong Kong … expect lecturers to teach them everything that they are expected to know. They have little desire to discover for themselves or avail themselves of the facilities which are available to them within the teaching institution. They wish to be spoon fed and in turn they are spoon fed. Lecturers are under pressure to feed the student with a certain amount of academic and community needs information and the simplest way to do it … is to adopt the old and traditional approaches to teaching. (Minutes of the […] Course Planning Committee, 1989, p. 13)

This perception, though, has been seen as an inconsistency which has become known as the 'paradox of the Chinese learner' (Watkins & Biggs, 1996). Rote learning is seen as an undesirable approach to learning, which when adopted by Western students has tended to be associated with poor learning outcomes. However, there is abundant evidence from international comparisons of students from Asia performing very well (see Stevenson & Lee, 1996 for a review).

For example, the third Programme of International Student Assessment, organised by the Organisation for Economic Co-operation and Development, compared performance of 15-year-olds in 57 countries and regions (Organisation for Economic Co-operation and Development, 2007). In science and reading, two of the top 4 spots went to Asia, while in mathematics, they filled three of the top 4 places. In the

2012 testing of 15-year-olds, the top seven places in mathematics were taken by Asian countries (OECD, 2012). The top 7 countries/regions were, in order, Shanghai, China; Singapore; Hong Kong, China; Chinese Taipei; Korea; Macau, China; and Japan.

There has been some speculation about whether the paradox of the Chinese learner might be more widely applicable to Asian learners generally. The PISA rankings suggest that it is predominantly a Chinese or Confucian-heritage phenomenon.

Research into the paradox has produced two contributing explanations:

1. Research in Hong Kong and China has uncovered evidence of a set of approaches to learning, intermediate between pure surface and deep approaches, which combine memorisation and understanding. Observations of Chinese students apparently attempting to memorise material could have been misinterpreted as rote memorisation, when in fact the memorisation was combined with attempts to reach understanding and was therefore not a surface approach.
2. When Chinese students do employ a surface approach, it is likely to be a response to perceptions of contextual factors in the teaching and learning environment, rather than as a characteristic of a cultural group or a predominant regional trait.

Approaches to Learning

The original characterisation of approaches to learning was essentially dichotomous. Marton and Säljö (1976) claimed that when students were asked to read an academic text, they either adopted a deep approach, by trying to understand the underlying meaning intended by the author, or a surface approach in which superficial features are committed to memory.

Intermediate approaches to learning

The characterisation of approaches to learning has been revised following research largely emanating in Hong Kong. Kember and Gow (1989, 1990) compared factor structures of data from questionnaires used to measure approaches to learning with those from elsewhere and interviewed students about their approaches to tackling specific academic tasks. Analysis suggested that memorisation might be occurring in conjunction with attempts to reach understanding in a 'narrow approach'. Students worked systematically through texts section by section, attempting to understand each new concept and then commit it to memory before proceeding to the next. The following quotation, from an interview with a Hong Kong student, illustrates the approach:

> I read in detail section by section. If I find any difficulties I try my best to solve the problem before I go onto the next section. … If you don't memorise important ideas when you come across them then you will be stuck when you go on. You must memorise and then go on – understand, memorise and then go on – understand, memorise and then go on. That is my way of studying. (Kember & Gow, 1990, p. 361)

Other intermediate approaches have subsequently been identified. Marton, Dall'Alba and Kun (1996) reported two combinations of memorising and understanding, one of which took a different form to the narrow approach described above. The two variants were distinguished by whether the attempt to understand came before or after the memorisation. When memorisation came first, it was used as an attempt to reach understanding.

Tang, T. (1993) found variants on a surface approach in which Hong Kong school students made limited attempts to order or understand material to reduce the memorisation load. The students initially intended to memorise material but found the memory load became such that some selection became necessary as they progressed through school. Watkins (1996) interpreted interviews with Hong Kong secondary school students as showing that students developed through a sequence of three or four stages. Initially their intention was to achieve through reproduction, by rote-learning everything. The students then passed to the next stage of rote-learning things perceived as more important. In the subsequent developmental stage, the students started to see the benefit of trying to understand material before committing it to memory.

Tang, K.C.C. (1991) observed students initially employing a deep approach by trying to understand concepts, but then committing the material to memory to satisfy assessment requirements. This intermediate approach was used by students who had a preference for seeking understanding, but recognised that their examinations normally required them to reproduce material. They, therefore, tried to understand the concepts and then made sure the material was learnt so they could get a good grade in the examination.

Kember (1996, 2000a) suggested that the various forms of combining memorisation and understanding meant that approaches to learning might be better characterised as a continuum rather than dichotomous deep and surface approaches. The positions upon the continuum are characterised by the intention and the strategy employed. The continuum ranges from pure surface to pure deep, with positions on the continuum determined by the relative degrees of memorising and understanding.

The existence of the intermediate approaches provides one explanation for the paradox of the Chinese learner. Chinese students could have been observed appearing to try to commit material to memory. It is common, for example, to see them with cue cards of key facts before tests and examinations. They can also be observed rehearsing written speeches before presentations. These visible signs of attempts to memorise would normally be interpreted as rote learning or mechanical memorisation, as that is what such behaviour would commonly imply if the students were from the West. The assumption would therefore be that students displaying such behaviour were employing a surface approach to learning and that was a common trait among Chinese students.

However, the discovery of the intermediate approaches means that the signs may not have been diagnostic of a surface approach – the students could have been combining memorisation with efforts to understand material, which is not consistent with either rote learning or a surface approach. Such behaviour could in fact provide

an explanation for the good performance of Chinese students. Seeking understanding or employing a deep approach tends to be associated with positive academic outcomes. Assessment often requires little more than reproduction, so it rewards those who have committed material to memory. In which case, employing one of the combined approaches offers the best of both worlds.

Are Intermediate Approaches Culturally Specific?

It has yet to be established whether all positions on the spectrum are found universally or some are specific to Asia or Confucian-heritage countries. Evidence of the intention to both understand and memorise has also been found in mainland China (Marton, Dall'Alba & Kun, 1996) and Japan (Hess & Azuma, 1991), so it may be quite widespread among Asian students. This has led to some interpretations that Chinese or Asian learners have distinct approaches to learning from those characterised in the West. There is, though, no clear evidence for this position.

The revised Study Process Questionnaire (R-SPQ-2F, Biggs, Kember & Leung, 2001) was completed by large samples of university students in Sydney and Hong Kong (Leung, Ginns & Kember, 2008). Multiple-group analyses using structural equation modelling showed configural invariance, implying that students from the two countries were employing the same conceptual frame of reference when responding to the R-SPQ-2F. This suggests that the continuum characterisation of approaches to learning is likely to be applicable for Western as well as Chinese subjects. The correlations between deep and surface approaches for universities in both Hong Kong and Sydney were negative (Hong Kong = −0.39, Sydney = −0.63). These substantial negative correlations are consistent with the continuum model of approaches to learning, as they imply that the deep and surface approaches can be envisaged as opposite ends of a spectrum.

Comparison of mean scores showed the Hong Kong sample to be higher on both deep and surface approaches, with the effect sizes for differences (d) on surface approach being substantially larger than for deep approach ($d=0.75$ versus $d=0.24$, respectively). The difference in mean scores suggested cultural differences in the extent to which particular approaches are employed, with the Hong Kong sample reporting greater use of both deep and surface approaches. These results might be interpreted as suggesting that the Hong Kong students had a greater propensity to employ combinations of approaches or intermediate approaches.

It is possible that Chinese students are more inclined than their Western counterparts to employ the two central approaches in the row labelled 'understanding and memorisation' in Table 11.1. The narrow approach, introduced in the previous section (Kember & Gow, 1990), possibly results from studying in a second language. Those employing it lack the ability to skim through a text searching for cues to key concepts, so instead they systematically work through material section by section seeking to first understand then commit to memory. The other central approach features frequent repetition which results in material being committed to memory

Table 11.1 Approaches to learning as a continuum between deep and surface poles

Approach	Intention	Strategy
Surface	Memorising without understanding	Rote learning
Intermediate 1	Primarily memorising	Strategic attempt to reach limited understanding as an aid to memorisation
Understanding and memorising	Understanding and memorising	Repetition and memorising to reach understanding
		Seeking comprehension then committing to memory
Intermediate 2	Primarily understanding	Strategic memorisation for examination or task after understanding reached
Deep	Understanding	Seeking comprehension

and eventually leads to understanding (Marton et al, 1996). Kember (1996) has speculated that this approach may result from learning a character-based language, as these are traditionally learnt through constant repetition in order to remember the numerous characters. If this is the case, this approach is likely to be restricted to those countries which use character-based languages.

Other intermediate positions on the spectrum, though, seem more likely to be adopted as responses to prevailing learning and assessment contexts. They might then be somewhat more prevalent in Asia as it is common for assessment to be restricted to public examinations, and these assume great importance in elite educational systems, especially when parental expectations are high. There is some evidence, from the work of Entwistle and Entwistle (2003), that the intermediate positions close to the deep and surface poles of the continuum occur in the West. They identified a range of interpretations of understanding in Western students revising for examinations. Some of these showed signs of both memorising and understanding. Case and Marshall (2004) identified intermediate surface and deep procedural approaches for problem-solving by engineering students in South Africa and the UK. Some cases were classified as surface procedural as the students mechanically solved problems by using algorithms. There was also evidence of deep procedural approaches when students intended to reach an understanding through application by solving problems.

More research is necessary about the cultural applicability of the intermediate approaches. The intermediate positions are definitely characteristic of Chinese learners. There is some evidence of their occurrence with other Asian learners, particularly those in countries with character-based languages. However, Asia is a large and diverse continent, so generalisation is difficult. There is some evidence of intermediate positions in the West, particularly as responses to assessment tasks. There is no evidence of intermediate positions being exclusively culturally specific to Chinese or Asians, but there is evidence that Chinese learners make greater use of intermediate approaches, particularly those close to the centre of the spectrum.

Learning Approaches as Responses to Perceived Context

When Chinese and other Asian students do use a surface approach, it is commonly a response to the perceived context, as with students everywhere. In Asia there is often intense pressure to perform well in school-level examinations because of restricted access to the latter part of secondary education and/or limited places in good-quality universities. Many Asian countries retain elite educational systems. Progress towards mass higher education varies across the region and in some cases is complicated by the presence of colleges or universities of varying types and quality.

Hong Kong can be used as an example. Only about 17 % of an age group gain entry to one of the seven universities funded by the UGC of Hong Kong (University Grants Committee of Hong Kong, 2006). To cater for the large numbers of students unable to gain one of these places, the government has encouraged the growth of a community college sector on a self-financing basis. However, there are issues with the community colleges as the associate degrees they award do not often articulate into a place at a UGC-funded university, nor are they perceived by students, the public or employers as suitable terminal awards (Kember, 2010).

In Hong Kong, like many other Asian countries, entry to university depends almost entirely on results in the externally set examinations. The combination of the significance of the examinations and the elite educational systems naturally prompts both pupils and teachers to concentrate attention upon passing examinations. These pressures inevitably influence approaches to both teaching and learning, so practices such as coaching for examinations and remembering model answers are common.

These pressures are magnified because of the importance placed on education which arises from the traditional respect shown to education in Confucian-heritage societies and from potential economic benefits which tend to accrue to the better educated. Lee (1996) reviewed the writing of Confucius on the topic of education and expressed the view that the term learning pervades the *Analects* to the extent that it might be interpreted as a book of learning. The Confucian philosophy became enshrined in China in a tradition of cultivation of the self and of scholarship to provide a preparation for government office.

In Chinese and most Asian societies, achievement motivation has a more family and societal orientation than the individual nature of achievement motivation in the West (Hsu, 1981; Yang & Yu, 1988; A. B. Yu, 1996; E. S. H. Yu, 1974). This results in additional pressures from parents on their children. These family achievement motivation pressures are often reinforced by expectations of social advancement through education. It is common for one generation of an extended family to make financial sacrifices to enable the next generation to receive a better education than they did. This creates a burden to both do well in studying to take full advantage of the opportunity provided and also to ensure that results are good enough to obtain a prestigious well-paid position which will enhance the status of the family and result in a financial dividend for the sacrifice.

The overall effect of the contextual influences on approaches to learning constitutes the second contribution to the paradox of the Chinese learner. If Chinese students are genuinely observed to be rote learning or employing surface approaches to learning, this is not a manifestation of a predisposition by cultural groups or an inherent characteristic of Chinese learners. It is, rather, a response to perceptions of contextual factors in the teaching and learning environment magnified by systemic pressures and societal expectations. Given that there are similar pressures to perform well in examination-oriented educational systems through much of Asia, this second contribution might well be seen as an Asian phenomenon.

Beliefs About Teaching, Learning and Knowledge

The importance of examinations in the elite educational systems, magnified by family and societal pressures, influence students' beliefs about the interconnected trio of conceptions of teaching, learning and knowledge. This trio of beliefs normally forms a logically related and consistent set. Underlying conceptions have a marked impact upon behaviour, so beliefs about teaching and learning are a major determinant of how students behave in their studies.

Kember (2001) investigated the beliefs about teaching, learning and knowledge of two contrasting groups of part-time Hong Kong students, novices and experienced students, respectively. The novice interviewees were in their first year of part-time study, mostly studying part-time because they had been unable to gain a place in a full-time undergraduate degree in a UGC-funded university. The experienced students had completed undergraduate degrees and were now studying part-time for postgraduate awards.

Analysis of the interviews revealed two contrasting sets of the trio of beliefs (Kember, 2001). The large majority of the novice students held a trio of beliefs labelled 'didactic/reproductive'. They believed that the role of the teacher was to transmit or teach a body of knowledge. Their role as students was to absorb the knowledge decided as appropriate by the teacher or the examination authority. The outcome of the process of teaching and learning was judged by whether the students were able to reproduce the body of knowledge for the examinations and other assessments. They believed that knowledge is defined by an authority so is either right or wrong. Where multiple opinions exist, an authority will eventually decide which is correct. The more experienced and sophisticated students held a different trio of beliefs called 'facilitative/transformative'. They believed that a teacher's role should be that of facilitating learning through transforming conceptual beliefs.

Good Teaching

A highly significant consequence of the contrasting belief sets is that they resulted in very different conceptions of what constitutes good teaching (Kember, Jenkins & Ng, 2003). These contrasting beliefs about teaching are represented by the

Students' conceptions
of learning
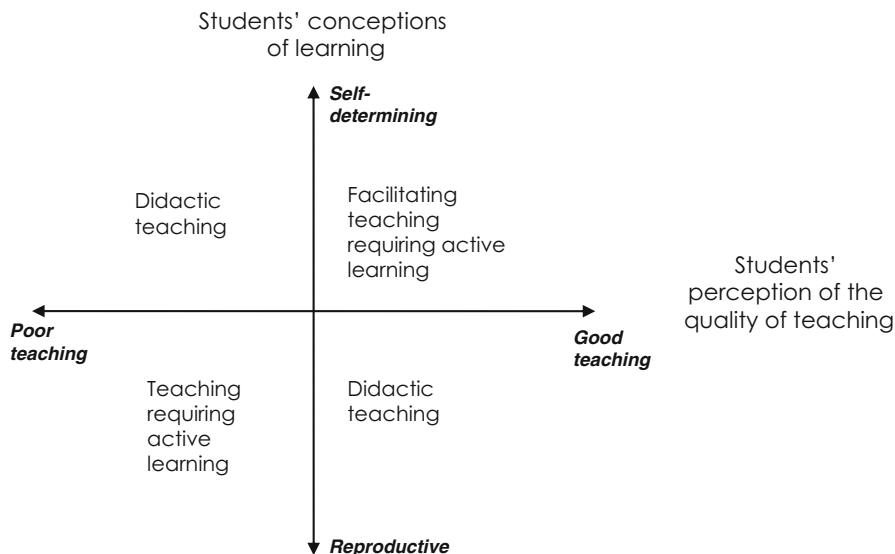
Fig. 11.1 Contrasting conceptions of good teaching

quadrants in Fig. 11.1. The students holding the naïve or reproductive belief set preferred teacher-centred forms of teaching. They wanted teaching in which a defined body of knowledge was transmitted to them, so they preferred didactic teaching. By contrast the self-determining students with the facilitative/transformative set of beliefs thought that didactic teaching was poor teaching. The outcome is that the conceptions of good and poor teaching are diametrically opposite.

The contextual, systemic and societal pressures described above can act to influence Asian school students to cling to the naïve trio of beliefs. They then enter university with a set of beliefs which are not compatible with the ideals of higher education. Holding the set of beliefs would influence students to study and behave in class in ways which university teachers would construe as being inconsistent with achieving desired learning outcomes.

Resistance to Active Learning

A consequence of holding the naïve trio of beliefs is that students can seem reluctant to engage in active forms of learning and appear resistant to innovative forms of teaching and learning. They conceptualise teaching as something in which the teacher conveys to them a defined body of knowledge which they absorb and commit to memory. Forms of teaching and learning inconsistent with these beliefs are regarded as inferior.

It is possible to persuade students to adapt to more innovative forms of learning and appreciate that they result in better learning outcomes. For over 5 years I ran an inter-institutional initiative known as the Action Learning Project which supported 90 action research projects within eight universities and colleges in Hong Kong (Kember, 2000b). In these projects teachers introduced a wide variety of innovative forms of teaching and learning into their courses – almost anything other than didactic lecturing – to supposedly passive students.

The Action Learning Project was evaluated with a multiple-method, multiple-voice approach. This included a questionnaire to all project participants. The substantial majority of the respondents believed that their projects had resulted in:

- Improved teacher-student relationships
- Improvements in students' attitude
- Improvements in students' learning approaches
- Improvements in students' performance

Each of the projects was extensively evaluated, so these responses would have been informed by evaluation data. This would seem to provide evidence that Asian students can adapt to innovative teaching and can come to see the advantages of it and can benefit from it.

Helping Students to Change Beliefs and Approaches

In the preceding section, it has been suggested that holding the naïve trio of beliefs can be a major contributor to Asian students resisting the introduction of more innovative forms of teaching which involve student activity. There was, though, evidence of students being able to overcome an initial dislike of active involvement in class and to eventually participate willingly in learning activities. For this process to happen, it seems as though there must have been some shift in their beliefs about teaching and learning, as this seems to be either a precondition or an accompanying transition if students are to willingly contribute and participate in class.

More direct evidence of changes in beliefs about learning came from interviews with the experienced part-time students (Kember, 2001), who were asked to compare their learning experiences as full-time undergraduate students with current practices as part-time students enrolled for higher degrees. These parts of the interviews provided rich evidence of a shift in beliefs about learning. One typical quotation is given below:

> I think my learning method changed after my second year of university.
>   Q: From what to what?
>   Because from Hong Kong schools, I was trained to memorise, revise, not to think that much. And I tried the same method in first two years of university. My grade points weren't high enough because the exams are not oriented towards memorising everything. For example, the lecturer will give you a take-home exam. You know, you take your final exam home and you…and to give you one week to do your final exam. So, when I had it first outside

yes, very easy. You know. But it was very hard. It was harder than writing an exam because there are no right answers. They make you think. And because I really thought it would be easy. But in fact, you would realise that there were no right answers. There will be no right answer at all. You have to think and analyse and how you present your thoughts. … And in my third and fourth year of my undergraduate course, I learnt to think and present my thoughts. And I wasn't memorising anymore. I understood what was happening. Memorising did not help. (Kember, 2001, pp. 213–214)

This student made this conceptual change through exposure to a type of assessment incompatible with existing beliefs about learning, though earlier experiences had clearly raised doubts. There was also evidence of the other experienced postgraduate students in the sample holding more sophisticated beliefs. All of the sample went through the Hong Kong school system, which is likely to have influenced a significant proportion towards reproductive beliefs at some stage. Yet they must have developed away from these beliefs as the experienced students in the sample were clearly self-directing at the time of the interviews. Award-winning university teachers, interviewed in a study by Kember with McNaught (2007), recognised the naïve trio of beliefs as a problem which needed to be dealt with:

Unfortunately, in Hong Kong education, they are not trained to discuss and debate at primary and secondary levels. It's difficult for them to put down the old mode of learning and pick up discovery. … Students who grow up in Hong Kong however are generally frightened as they are so used to have model answers given to them in their secondary school training. 'You just give me the model answers, tell me all about the author and I will memorise so that I can regurgitate during exams'. There were times when students were really frightened and dissatisfied with the fact that I had not given them the absolute model answers. So, it takes rather a long time to convince the students that the teacher is not there to tell me everything or hand down knowledge. It is I myself who need to think independently, analyse, discover and eventually understand. (Lo Wai Luen – CUHK – Chinese Literature, quoted in Kember with McNaught, 2007, p. 40)

This quotation makes it clear that changing deep-seated beliefs is never an easy process, especially when the beliefs in question are central to a person's role, as beliefs about teaching and learning are to students. The trio of beliefs about teaching, learning and knowledge is clearly not suited to the ideals of university education, yet it is hard, and even traumatic, to change as it becomes entrenched through the years of schooling. Changing beliefs needs a challenge to one or more of the components of the trio through exposure to practices consistent with more sophisticated beliefs. However, the exposure needs to be progressive, and support should be provided. When students enter a programme believing that all questions have answers which are either right or wrong, activities and assessment might be planned so as to progress from relatively straightforward tasks at the outset to more open-ended ones as the programme progresses:

So, my teaching will move from a more structured approach at the beginning to a more open-end one towards the end; the teacher will move away from readily providing answers to giving no concrete answers eventually. This is exactly what the real world is: no definite answers for questions. At the start, they will gain confidence from 'getting the answers right'. This confidence is important to enable them to gradually discover that there are no absolute concrete answers but a logic or framework of thinking base upon which they can formulate their viewpoints, judgments and predictions. Learning is about developing their

own thinking rather than finding model answers. (Andrew Chan – CUHK – Marketing, quoted in Kember with McNaught, 2007, p. 64)

The adult education movement has seen students developing self-direction as an important goal, so the literature can make a valuable contribution towards identifying ways to help learners become self-directing. Kember (2007) synthesised key principles from the contributions of the adult education literature:

1. The change needs to be progressive or gradual, rather than abrupt.
2. Change should be from the familiar or known territory to the unknown.
3. There needs to be a challenge to existing beliefs through exposure to contrary positions, which in this case means exposure to types of teaching and learning inconsistent with existing beliefs.
4. Exposure to contrary positions needs to leave students dissatisfied with their existing beliefs, in this case by showing that the alternative forms of teaching and learning lead to better learning outcomes.
5. Support needs to be provided for what can be a difficult, and even traumatic, process.

A Hong Kong example comes from Kember et al. (2001, Chap. 10 in particular). This book reports courses which challenged learners' reproductive beliefs by focussing towards the development of reflective practitioners. This posited the students' experience as a significant source of knowledge for the course. The courses were initially quite discomforting for the majority of the students. With support from the teachers and fellow students, though, most adapted to and eventually came to prefer reflective to reproductive learning. In the process they also became more self-directing.

Conclusion

Research into the learning approaches of Chinese students suggests that Western interpretations of study behaviours of students from Asia can often be misinterpretations. In other cases, such as passive behaviour and reluctance to engage in innovative forms of learning, their actions may be a consequence of beliefs about learning and teaching which have been acquired through years of schooling in elite educational systems which have high consequences for results in external examinations. The pressure to do well in examinations and gain one of the restricted numbers of places in universities is magnified by societal and family pressures because of the respect accorded to education.

Students can be helped towards more sophisticated beliefs about learning, teaching and knowledge, and with this transition comes a greater openness to study behaviours more consistent with the ideals of higher education. Many students who complete undergraduate degrees in their home countries clearly do make the transition to the more sophisticated belief set. High-ranking universities in the West have

become keen to recruit research students from Asia. They would not do this, and those recruited would not succeed as research students, if they lacked high-order intellectual capabilities.

To close, it might be useful to address the issue of whether the research discussed relates to the Asian or Chinese learner. The book title refers to *The Psychology of Asian Learners*. My chapter title refers to the 'Chinese learner'. The term Chinese in the chapter title seems appropriate as I wished to base the chapter on the venture undertaken with David Watkins and other colleagues in Hong Kong. At the time it seemed appropriate to refer to our research as about Chinese learners as then nearly all students in the universities in Hong Kong were Chinese. This is reinforced by Hong Kong now reverting to being part of China.

The chapter has advanced two explanations for the paradox of the Chinese learner. The first of these concerns intermediate approaches combining memorising and understanding. In this part of chapter, I have, in the main, referred to the Chinese learner, as more research is needed to see how widespread these intermediate approaches are. The second explanation suggests that surface approaches may be adopted to cope with the pressures of examination-oriented elite educational systems. Such pressures are common across Asia, so in the latter part of the chapter, relating to the second explanation, I have generally used the term Asian learner.

This discussion reflects a more general interest in progress in establishing a distinct branch of educational psychology relating to the Chinese or Asian learner. In the past most educational psychology research has been conducted in the West, and the findings have generally been assumed to be universally applicable, since the predominant scientific method tends to assume generalisability. More recently, Chinese psychology has established itself as a respected field, evidenced by two substantial collected volumes edited by Michael Bond (1996, 2010). Educational psychology, particularly the work on the Chinese learner, has found a place here.

This book should contribute to advancing the case that there is a psychology of the Asian learner. Two caveats should be clearly understood. Firstly, there is never homogeneity within a cultural group. Any apparent differences between cultures are ones of degree, rather than distinctions which can be attributed to each individual within the particular cultural groups. Secondly, even if some generalisations can be attempted, students from Asia are not homogenous in their characteristics. Within this large and diverse grouping, there is a rich and complex tapestry of variations arising from cultural distinctions, individual variations and background circumstances.

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Chapter 12
The Predictive Power of Psychological Types for Learning Approaches Among Chinese University Students

Qiuzhi Xie

Abstract Scant research investigated the relationships between learning approaches and personality traits in the Chinese educational contexts. Therefore, the present study investigated the relationship between the Big Four model of personality types (or in other words, psychological types) and learning approaches among Chinese university students. The participants were 217 students from a university in China. Psychological types and learning approaches were assessed by surveys. The results showed that deep learning approach positively related to sensing-intuition and negatively related to extraversion-introversion and thinking-feeling. Surface learning approach positively related to judgement-perception. Psychological types accounted for approximately 11 percent of the variance in deep learning approach and around 10 percent of the variance in surface learning approach, after controlling for gender and year of study. Moreover, learning approaches were related to gender, year of study, and parents' education levels. The influence of sociocultural contexts on students' learning approaches and practical implications for education were discussed.

Keywords Learning approaches • Psychological types • Personality

Learning approaches refer to the preferred manners of approaching learning tasks (Biggs, 1987). The theory of learning approaches (Biggs) initially identified deep, surface, and achieving learning approaches. Each learning approach is comprised of two components: learning motivation and the corresponding learning strategy. Deep learners tend to be intrinsically motivated and read extensively to have a thorough understanding of what has been learned. Surface learners tend to be extrinsically motivated and learn by rote. Achieving learners are ego enhancing and tend to

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maximize their grades. Students may use any of these learning approaches to a different degree. For example, a student could be intrinsically motivated to read broadly but also tend to prepare for examinations by rote memorization because of assessment demands.

Biggs (1987) argued that surface and deep learning approaches, which denote how learners are involved in learning tasks, are different from achieving learning approach, which describes how students organize learning. Later, researchers found that achieving learning approach overlaps with both deep and surface learning approaches (Kember & Leung, 1998; Phan & Deo, 2008). Therefore, Biggs, Kember, and Leung (2001) updated the instrument that assesses learning approaches based on the two-factor model (i.e., deep and surface learning approaches).

Learning approaches are important in explaining individual differences in educational outcomes and may have unique predictive effects on learning performance (Furnham, 2011). Relative to surface learning approach, deep learning approach is more likely to result in high quality of learning (Chamorro-Premuzic & Furnham, 2008; Trigwell & Prosser, 1991).

Biggs (1987, 2001) indicated that learning approaches are affected by a number of personal and instructional factors. Researchers have found that learning approaches are associated with personal factors such as demographics, personality, typical intellectual engagement, and critical thinking (Phan, 2011; von Stumm & Furnham, 2012; Xie, 2013a; Xie & Zhang, 2014). Regarding demographics, researchers have reported age and gender differences in learning approaches. In the Western context, mature-aged university students (aged 23 or above) were more likely to be deep learners than young students (Sadler-Smith, 1996; Severiens & Ten Dam, 1997). Sadler-Smith and Tsang (1998) also found an interaction effect between age and gender on learning approaches among Hong Kong learners: older male learners were more likely to be deep learners than were their younger male counterparts; however, this trend was opposite among female learners. Findings on gender differences are inconsistent. While several studies reported that female learners were more likely to use deep learning, more studies reported the contrary trend (Xie, 2013a). In addition, scholars also reported differences among students of academic disciplines and years of study in learning approaches. Arts majors were more likely to be deep learners, whereas science majors were more likely to be surface learners (Biggs, 1987; Severiens & Ten Dam, 1997). The existing findings on the relationships between learning approaches and year of study are also inconsistent. For instance, Watkins and Hattie's (1981) study showed that senior university students were more likely to be deep learners, whereas Busato, Prins, Elshout, and Hamaker's (1998) and Zhang's (2003) study showed that the more years students spent in a university, the less likely they became deep learners. Zhang's (2000) study also showed that those who had more work and travel experience were more likely to be deep learners; parents' education levels were positively associated with deep learning approach among the US students, but not among Chinese students.

Personality has also been investigated as an important personal factor that influences learning approaches. It has been consistently found that deep learning approach positively relates to extraversion, openness to experience, and conscientiousness; surface learning approach relates positively to neuroticism and

negatively to openness to experience and conscientiousness (Chamorro-Premuzic, Furnham, & Lewis, 2007; Furnham, Christopher, Garwood, & Martin, 2007; Xie & Zhang, 2014; Zhang, 2003). Several scholars also explored the overlap between personality and learning approaches; however, inconsistent results have been reported. For example, Chamorro-Premuzic and Furnham (2009) reported a moderate overlap of around 18 %, whereas Duff, Boyle, Dunleavy, and Ferguson (2004) reported a substantial overlap of around 45 %. In addition, Xie (2015) found that deep learners were more likely to have the thinking and judging mental process, whereas surface learners were more likely to have the perceptive mental process.

However, the association between learning approaches and personality has been predominantly explored in Western cultural contexts and insufficiently explored in Asian cultural contexts. Phan (2012) implied that individuals' learning approaches are potentially affected by sociocultural contexts. Hence, the associations between personality and learning approaches found in the Western learning contexts may not be generalizable in an Asian learning context. A number of scholars have emphasized the cross-cultural validity of the learning approach theory (Phan, 2012; Watkins, 1998, 2001). Watkins (1998) pointed out that Western people commonly hold a concept that Asians tend to be passive learners who usually learn by rote; however, this misconception has been disproved by a few studies which suggested that the theory of learning approaches is also applicable to describe Chinese people's preferred ways of approaching learning tasks (Watkins, 1998, 2001). However, the discrepancy between Chinese and Western learners in learning approaches also exists. For example, Chinese learners tend to regard memorization as pertinent to both deep and surface approaches to learning; Western learners, in contrast, tend to merely see memorization as relevant to surface approach to learning (Watkins, 2001). Such distinction is likely to be explained by different cultural perspectives (Phan, 2012). In China, the education tends to emphasize the compliance with regulations and absorption of knowledge. In such learning context, students may regard memorizing knowledge as an important way of learning. Also in China, secondary education emphasizes hard work, as students have to study hard to be enrolled into universities, especially prestigious ones, facing limited tertiary education resources. By contrast, graduation from universities is relatively easy, and the majority of students can graduate successfully. Further, Chinese learners tend to emphasize personal virtue in learning and appreciate the effort made to enlarge knowledge, unlike Western learners who tend to emphasize mind capability in learning and appreciate personal curiosity, intrinsic enjoyment, and the tendency of challenging and questioning extant knowledge (Li, 2005). These sociocultural contexts for learning and cultural beliefs about learning potentially shape individual learning orientation and approaches to learning.

Further, the existing investigations into the relationships between learning approaches and personality also have the following two problems. First, as pointed out by Chamorro-Premuzic and Furnham (2009), the majority of these studies only reported the correlations between learning approaches and personality, and there is a dearth of studies on the overlap between the two constructs. Second, scholars predominantly tested personality based on the Big Five model (Costa & McCrae,

1992); and so as far as I know, only one study (Xie, 2015) looked into personality based on another model. Examining personality on other models than the Big Five is necessary as it may help to reach a more insightful comprehension about the associations between personality characters and learning approaches.

The present study investigates the relationship between learning approaches and an alternative personality model, the Big Four model or, in other words, psychological types which refer to one's preferred attitudes and mental functions (Jung, 1923; Myers & McCaulley, 1985). This theory depicts four indices of our basic preferences: extraversion-introversion (EI), sensing-intuition (SN), thinking-feeling (TF), and judgment-perception (JP). EI refers to one's orientation toward the outside world (E) versus toward the inner self (I). SN refers to one's mental tendency to seek observable facts and realities (S) versus to seek meanings and possibilities (N). TF refers to one's mental tendency of making judgments based on logical consequences (T) versus on values (F). JP refers to one's preference for organized and structured information (J) versus for flexibility (P). The combinations of the four preference indices result in the type formula in the following order: E or I, S or N, T or F, and J or P. Sixteen types occur from the combinations, such as ESTJ and INFP (Myers & McCaulley, 1985). Psychological types and the Big Five personality model are the two most extensively used personality models in addressing individual differences in behavior and cognition (Furnham, Moutafi, & Crump, 2003). A number of scholars studied the associations between the two personality models and revealed that these two models are overlapping to some extent. Specifically, they found the associations between extraversion and EI, openness and SN, agreeableness and TP, conscientiousness and JP, and neuroticism and both EI and TF (e.g., Furnham et al., 2003). However, these two models are not identical, and neither one can fully explain the other (Xie, 2015); thus, exploring the relationships between some common factors and both the personality models may provide more conclusive evidence for the effect of personality on the factors under investigation (Furnham et al., 2003). Given that the exploration on the associations between psychological types and learning approaches is lacking, the present study aims to investigate the relationships between these two constructs in order to provide a more comprehensive understanding on the personality-learning approach associations. This study not only helps to explain the theoretical similarities between the two constructs, but it also has practical significance. Both psychological types and learning approaches predict some educational outcomes such as academic performance. Studies on learning approaches reported the associations between deep learning approach and higher academic grades (Furnham, Monsen, & Ahmetoglu, 2009); and studies on psychological types indicated that students who were intuitive and perceptive tended to obtain higher scores in a standardized test of knowledge and skills than those who were sensing and judging, whereas students who were judging tended to achieve higher grades than those who were perceptive (McPeek, Urquhart, Breiner, Holland, & Cavalleri, 2011). The present study helps advance the understanding on the predictive power of the two constructs for educational outcomes. If the two constructs are substantially overlapping, the prediction of educational outcomes by learning approaches can be largely explained by psychological types.

On the contrary, if the two constructs are merely marginally related, the learning approach construct potentially has unique contribution to educational outcomes along with psychological types. In addition, as Chamorro-Premuzic and Furnham (2009) pointed out, educators who intend to modify students' learning approaches would benefit from being aware of the relative influence of personality on learning approaches.

I posited that those with the extraverted attitude, the intuitive, thinking, and judging processes, are more likely to use deep learning approach, whereas those with the sensing and perceptive processes are more likely to use surface learning approach. These hypotheses were made based on the conceptual similarities between the two constructs and the existing findings (Furnham, Christopher et al., 2007; Furnham, Dissou, Sloan, & Chamorro-Premuzic, 2007; Xie, 2015; Zhang, 2003). Deep learners tend to be more interested in the outside world than inner self. Individuals who are intuitive tend to be open to experience, and individuals who are judging tend to be conscientious (e.g., Furnham, Dissou et al., 2007; McCrae & Costa, 1989). Besides, deep learners are more potentially interested in the basic truth (the feature of the thinking process) (Xie, 2015). Additionally, the current investigations also include the relationships between learning approaches and demographic factors, and, based on the previous findings obtained in a Chinese context (Zhang, 2003), I predicted that males and Year 1 students are more likely to be deep learners.

Methods

Participants

The participants were 217 students from ages 17 to 22 years (Mean$_{age}$ = 19.73, SD = 1.17) from a university in Shanghai, China. These participants included 49 males and 167 females, and 1 student did not indicate the gender. Among these participants, 117 students were Year 1, and 99 students were Year 3; 115 students majored in Sciences and Technologies and 102 students majored in Social Sciences. Research ethic approval and students' consent were obtained prior to data collection.

Instruments

Learning Approaches The Revised Two-Factor Study Process Questionnaire (R-SPQ-2 F; Biggs et al., 2001) is a self-report questionnaire and includes the scales of deep learning approach (DA) and surface learning approach (SA). Each scale comprises of the two subscales of learning motivation and learning strategy. Thus, this questionnaire has four subscales: the deep learning motivation (DM), deep

learning strategy (DS), surface learning motivation (SA), and surface learning strategy (SS) subscales. This questionnaire includes 20 items, ten for each scale and five for each subscale. A five-point Likert scale is used for scoring. A higher score indicates greater endorsement of the item (1 = never or only rarely true of you, 5 = always or almost always true of you). The scores on the DA and SA scales equal the sum of their corresponding subscales. Biggs et al. (2001) reported that the Cronbach's alpha coefficients were .73 for the DA scale, were .64 for the SA scale, and ranged from .57 to .72 for the four subscales. Xie (2014) reported that the Chinese version of this questionnaire has comparable alpha coefficients and good construct validity.

Psychological Types The Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1985) is self-report and contains four scales that correspond to the four preference indices: EI, SN, TF, and JP. Each scale comprises two subscales of the two poles of each preference. For example, the EI scale is composed of the E and I subscales. Both dichotomic preference scores and continuous scores can be calculated. To calculate a preference score, the corresponding continuous subscale scores are firstly compared, and the higher score determines the direction of the preference. For the E, S, T, and J subscales, the formula of the preference score is $2 \times$(higher score – lower score) – 1; for I, N, F, and P, the formula of the preference score is $2 \times$(higher score – lower score) + 1. For example, if a participant gets 10 points on E and 18 points on I, his preference score is $2 \times (18 - 10) + 1$ equals I-17. If the preference scores are on the E, S, N, and J sides, the continuous scale scores equal 100 – preference score. If the preference scores are on the I, N, F, and P sides, the continuous scores equal 100 + preference score. For example, if the preference score is I-17, the continuous score on the EI scale is 117. Therefore, the lower the continuous scores of the scales, the stronger the mental orientations toward E, S, T, and J and the weaker the orientations toward I, N, F, and P, and vice versa.

The G form (the standard one) of this questionnaire, which originally contains 126 items, was used in this study. However, the items after no. 95 were not included, as they are on the lie scale and do not assess psychological types. The Chinese version of this questionnaire has good psychometric properties (Chen, Tian, Miao, & Chia, 2009).

Results

Table 12.1 shows the statistic descriptions of the variables included in this study. As can be seen, in this study, the students with the orientations for E, S, T, and J outnumbered those with I, N, F, and P. Table 12.2 shows the results of the bivariate correlations. Learning approaches correlated with gender, age, year of study, and family socioeconomic status. Male students were more likely than female students to use deep learning approach. In this study, age can be represented by year of study ($r_{\text{age-year of study}} = .85$, $p = .000$), because there were few mature-aged students in

Table 12.1 Descriptive statistics

Variables	Mean	SD	Alpha	Percentage (%)
DA	2.79	.65	.83	
SA	2.50	.66	.80	
DM	2.71	.71	.70	
DS	2.86	.66	.69	
SM	2.50	.70	.65	
SS	2.48	.75	.68	
E	13.80	5.69	.76	56.4
I	11.55	6.32	.78	43.6
S	16.47	5.66	.69	65.8
N	11.44	4.67	.64	34.2
T	13.44	5.66	.69	58.4
F	11.32	4.71	.70	41.6
J	18.77	5.49	.76	76.0
P	9.89	5.63	.77	24.0

Note: *Alpha* Cronbach's alpha coefficient, *DA* deep learning approach, *SA* surface learning approach, *DM* deep learning motivation, *DS* deep learning strategy, *SM* surface learning motivation, *SS* surface learning strategy, *E* extraverted attitude, *I* introverted attitude, *S* sensing process, *N* intuitive process, *T* thinking process, *F* feeling process, *J* judging process, *P* perceptive process

Chinese universities (namely, most students studied in universities right after the graduation from high schools). As can be seen, Year 3 students were less likely to be deeply motivated in learning than were their Year 1 counterparts. Both father's and mother's education levels were positively correlated with deep learning strategy.

Learning approaches correlated with all the four dimensions of psychological types. Extroverted people were more inclined to have deep learning motivation than were introverted people. People who had intuitive and thinking mental processes were more likely to use deep learning approach, especially deep learning strategy, than were those who had the opposite sensing and feeling processes. JP was correlated with surface learning approach: people with the perceptive process were more likely to be surface learners than were people with the judging process. The details are presented in Table 12.2.

The hierarchic multiple regressions with learning approaches as the dependent variables were conducted (see Table 12.3). As gender and year of study were correlated with learning approaches, they were introduced in the regression models as the first bundle of independent variables. Four scales of psychological types entered the regressions as the second bundle of independent variables. Gender predicted learning approaches: male students were more likely to use both the two learning approaches. Gender and year of study respectively accounted for around 5 % variance in deep learning approach and 4 % variance in surface learning approach. Regarding psychological types, EI, SN, and TF predicted deep learning approach, whereas JP predicted surface learning approach. Specifically, those who had the

Table 12.2 Bivariate correlations between

	Gender	Age	Year	Major	FE	ME	Income	DA	SA	DM	DS	SM	SS	EI	SN	TF
DA	−.24**	−.13	−.11	.06	.13	.11	.09									
SA	−.11	−.03	−.05	.05	−.01	.00	.01	−.07								
DM	−.21*	−.17*	−.16*	.08	.08	.04	.07	.94**	−.08							
DS	−.24**	−.06	−.04	.03	.17*	.16*	.11	.93**	−.05	.75**						
SM	−.18**	.00	−.05	.06	−.02	−.01	.02	−.06	.91**	−.09	−.02					
SS	−.03	−.04	−.03	.02	.01	.02	−.01	−.07	.92**	−.07	−.08	.69**				
EI	.01	.08	.08	.08	−.17*	−.18*	−.26**	−.17*	.11	−.19*	−.12	.07	.13			
SN	−.09	−.11	−.14*	.10	.07	.04	.10	.20**	.05	.17*	.21**	.10	−.01	−.06		
TF	.08	−.15*	−.15*	−.07	.04	.03	.20**	−.21**	.09	−.17*	−.23**	.07	.07	−.14	.04	
JP	−.05	−.03	−.04	.09	.08	.06	.14	−.01	.25**	.01	−.03	.31**	.15*	−.15	.52**	.26**

Note: Year year of study, *FE* father's education level, *ME* mother's education level, *Income* family income, *DA* deep learning approach, *SA* surface learning approach, *DM* deep learning motivation, *DS* deep learning strategy, *SM* surface learning motivation, *SS* surface learning strategy
Gender coded 1 = male and 2 = female; major coded 1 = Sciences and Technologies and 2 = Social Sciences. The higher the scores of the MBTI scales, the stronger mental orientations toward I, N, F, and P and the weaker orientations toward E, S, T, and J
*p<.05, **p<.01

Table 12.3 Regressions for predicting deep and surface learning approaches from psychological types

		DA			SA		
		β	SE β	St β	β	SE β	St β
Block 1	Gender	−.286	.132	−.184*	−.306	.135	−.192*
	Year	−.048	.055	−.075	−.023	.056	−.035
		R² = .05			*R² = .04*		
Block 2	EI	−.005	.002	−.201*	.004	.002	.162
	SN	.009	.003	.263**	−.002	.003	−.072
	TF	−.006	.003	−.177*	.003	.003	.102
	JP	−.002	.003	−.066	.008	.003	.299**
		Total R² = .16			*Total R² = .14*		

Note. *DA* deep learning approach, *SA* surface learning approach, *Year* year of study
Gender coded 1=male and 2=female. The higher the scores of the MBTI scales, the stronger mental orientations toward I, N, F, and P and the weaker orientations toward E, S, T, and J
*$p < .05$, **$p < .01$

extroverted, intuitive, and thinking processes were more inclined to apply deep learning approach than were those who had the opposite processes; those who had the perceptive process were more likely to employ surface learning approach than were those who had the judging process. Psychological types additionally accounted for around 11 % variance in deep learning approach and some 10 % variance in surface learning approach, after controlling for gender and year of study.

Discussion

This study investigates the relationships between learning approaches and psychological types. The findings show that students who were introverted and feeling, as opposed to those who were extraverted and perceptive, were less likely to adopt deep learning approach. These findings suggest the conceptual similarities between the two constructs. Potential deep learners tend to be curious about the external world rather than inner self, to seek more possibilities rather than existing facts, and to be interested in logic and basic principles rather than values and affective factors. Potential surface learners do not tend to be organized and purposeful. These findings are comparable to earlier findings on the relationships between learning approaches and personality based on the Big Five model (e.g., Chamorro-Premuzic et al., 2007; Furnham, Christopher et al., 2007; Zhang, 2003), thus further emphasizing the importance of extraversion, an open mind (indicated as openness in Big Five and SN in MBTI), and dutifulness (represented as conscientiousness in Big Five and JP in MBTI) in learning approaches. The current findings on the relationships between TF and deep learning approach as well as between JP and surface learning approach are consistent with Xie's (2015) findings. However, Xie's (2015)

study did not show significant relationships between deep learning approach and EI and SN. Further, the current findings show that around 11 % of the variance in deep learning approach and about 10 % of the variance in surface learning approach could be accounted for by psychological types after gender and year of study were controlled for; thus suggesting that learning approaches only moderately overlap with psychological types.

This study supplements the insufficient literature on the associations between personal factors and learning approaches explored in a Chinese cultural context. Learning approaches are affected by personality, shaped by the interaction with external environments, and expressed in the approaches to learning tasks. The relationships between learning approaches and the Big Four personality types shown in this study were comparable to those between learning approaches and personality found in Western contexts, implying that the way learning approaches are influenced by personality traits seems to be similar across cultures and learning approaches reflect the corresponding personality in dealing with learning tasks to some degree.

Additionally, this study demonstrates the effects of demographics on learning approaches. Male students were more inclined to use a variety of learning approaches than were female students. Year 1 students were more deeply motivated in their studies than were their Year 3 counterparts. The differences of gender and year of study in learning approaches found in this study are consistent with Zhang's (2000) earlier findings also obtained in a Chinese learning context. It seems that the more years Chinese students spend in universities, the less likely that they employ deep learning approach. In China, the resource of tertiary education is limited, but the graduation from a university is not difficult. A number of teachers and parents instruct secondary students that they should study hard to be admitted to a prestigious university, and when in a university, they do not need to study so hard and can be more relaxed. It seems to a number of students that being enrolled into a university is the goal of their study, and whenever they reach this goal, they may not regard it necessary to study hard. Hence, high school students tend to be more strongly motivated to study hard than do university students. Year 1 freshmen in a university may still be influenced by high school learning atmosphere, whereas Year 3 and 4 students tend to be more accustomed to a university learning atmosphere that is likely to be slack (Xie, 2013b). Xie's (2013b) research also found that some assessments in universities merely focused on the knowledge presented in textbooks and some students indicated that broad reading was not conducive for them to get higher grades in assessments; thus, these assessments in universities seemed to encourage students to learn by rote.

The relationships between family social economic status and learning approaches were also shown in this study: the higher parents' education levels were, the more likely that students would use deep learning strategy. This indicates the importance of family socioeconomic status in students' learning and somewhat supports Phan's (2012) argument that an individual's learning is impacted by the immediate family and its expectation. However, while Zhang (2000) found the effects of parents'

education levels on learning approaches among the US university students, she did not find such effects among Chinese university students. Zhang's (2000) study was conducted more than 10 years ago, and it is likely that the influence of parents' education levels on students' learning has become stronger in the past years in China. It is not beyond my aspiration that parents with higher education levels are more likely to encourage their children to use deep learning and obtain higher academic grades. However, more than 10 years ago, only high-achieving students were admitted into a university, and most of these students might have the parents with relatively high education levels. In the past 10 years, the university admission has been constantly increased and hence allows more students from the families with lower economic status to go to universities. Therefore, the variation in parents' education levels has been enlarged among university students, and the relationships between parents' education levels and students' learning approaches have become more obvious. However, the effect of family socioeconomic status on learning approaches has thus far still been insufficiently explored, and, thereby, more studies are needed to explore this issue.

The current findings also have practical significance. First, learning approaches only had a moderate overlap with psychological types, and this implies researchers and educators that the predictive power of learning approaches for educational outcomes may not be largely explained by psychological types. Second, the moderate overlap between learning approaches and psychological types also implies that the variance in learning approaches may not be considerably accounted for by personality characters and, thereby, external learning contexts also potentially influence learning approaches. This implication is also indicated by Phan's (2012) argument and Xie's (2013b) empirical findings. Phan (2012) argued that an individual's learning is impacted by the sociocultural contexts. Xie's (2013b) findings indicate that learning environment, especially peers' learning attitudes, and assessment formats impact students' learning approaches. Finally, this study implies that Chinese students' motivation to use deep learning approach tends to decline during university study. Therefore, educators in Chinese universities should adjust instructional methods and create a learning environment that facilitates deep learning approach. For example, educators can emphasize that learning is not just the accumulation of knowledge but a manner of equipping learners to be more abled people. As people's learning beliefs underlie their learning motivation and affect their learning behaviors (Li, 2005), modifying students' learning beliefs is likely to facilitate deep learning approach. Also, educators should not merely focus on the facts presented in textbooks, but should redesign assessment format to make sure that deep learners are more likely than surface learners to obtain a higher score in an assessment.

This study has several limitations. First, it only used single-wave data and, therefore, could not interpret the causality underlying some relationships found in this study. Second, the sample size of the present study is not sufficiently large for conducting path analysis to examine the prediction of learning approaches by psychological types. Third, the measurements in this study are self-report; therefore, the results may largely reflect students' preferred psychological types and learning

approaches rather than the actual ones. Last, this study is only conducted in one university in Shanghai. To have a more insightful understanding on the associations between demographics, psychological types, and learning approaches in Chinese learners, more similar studies are necessary to be conducted in other parts of China.

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Chapter 13
Preservice Teachers' Approaches to Learning and Their Learning Outcomes: A Malaysian Experience

Pauline Swee Choo Goh

Abstract The aim of the present study was to establish the validity of a Malay language "approaches to learning" questionnaire, the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F), for use with Malaysian preservice teachers by undertaking psychometrical testing, including confirmatory factor analysis. Upon its validation, the study subsequently set out to gain greater insight into the associations between Malaysian preservice teachers' approaches to learning and their learning outcomes as measured by their CGPA, acquisition of generic skills (problem-solving, critical and analytical skills, and the ability to work together as a team), and overall satisfaction. The two-factor structure of the Malay language R-SPQ-2F was confirmed at the main scale level (deep and surface approaches). A scatter plot showed that preservice teachers had higher scores for the deep approach than for surface approach to learning. Strong correlations were found between deep approaches to learning and greater acquisition of generic skills, between deep approaches to learning and higher overall satisfaction, and between greater acquisition of generic skills and higher overall satisfaction. Inversely, negative correlations were found between surface approaches and overall satisfaction. However, there were no associations between preservice teachers' approaches to learning and CGPA scores. Several explanations and implications are discussed.

Keywords Malaysian preservice teachers • Approaches to learning • Learning outcomes • Teacher education • R-SPQ-2F

Introduction

The study in this chapter draws upon a perspective well established in higher education literature, that of approaches to learning, initiated by Marton and Säljö (1976) and later established by Biggs (1987), Entwistle (1998), Watkins (1996), and many

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others. Approaches to learning are used to describe the learning processes adopted by students. From Marton and Säljö's (1976) study, students who have been asked to read and recall academic text exhibited different levels of outcomes. These students showed two levels of processing: deep and surface. Students adopting a deep approach would look for meaning in the matter being read or studied and relate it to other experiences and ideas with a critical approach. The aim of deep learning is to engage in a task with learning processes that are appropriate to completing it satisfactorily (Biggs, 2001). Results from deep approaches to learning are higher-quality learning outcomes and better grades, including the development of problem-solving and analytic skills (Biggs, 2001; Case & Gunstone, 2003; Goh, 2008; Gordon, Simpson, & Debus, 2001). Ramdsen (2003) further adds that deep approaches to learning are more enjoyable and more satisfying. In contrast, surface approach students concentrate on surface features of the learning material with an overreliance on rote learning and memorization in isolation from other ideas. Their aim is to reproduce elements of the learning material without a grasp of the underlying principal. Learning outcomes of surface learning are that the underlying meaning tends to become lost or without integration and there is no analysis of the learning material (Biggs, 2001; Watkins, 2001).

Preservice teachers in teacher education who are deep approach learners show a deeper level of the acquisition of generic skills such as critical thinking, ability to problem-solve, and an aptitude for reflective thinking (Gordon et al., 2001; Gordon & Debus, 2002). Gordon and Debus (2002) have indicated that how preservice teachers approach their learning is also able to influence how they will perform as in-service teachers. Beginning teachers whose learning processes are formed through the use of deep approaches to learning tend to demonstrate greater resilience when confronted with the complexities of teaching and exhibited more confidence in their early years in the profession (Gordon & Debus, 2002). Goh, Wong, and Osman (2012) have shown that preservice teachers who have a strong sense of teaching self-efficacy perceive that all students are teachable leading to the application of adaptive problem-solving strategies and high academic achievement. Attainment of strong self-efficacy requires a deep approach. In addition, deep learning approaches also imply higher cognitive processes and are consistent with constructivist views of learning wherein preservice teachers set out to solve problems in novel circumstances (Petegem, Donche & Vanhoof, 2005). On the other hand, preservice teachers who are immersed in a learning environment which encourages deep approaches to learning are more likely to practice a constructivist method of teaching; thus Petegem et al. (2005) suggest that it would be beneficial to encourage deep processing strategies among preservice teachers. However, in most teacher education in Malaysia, considerable attention is generally given to the learning of "how to teach" and generally to ensure that potential teachers demonstrate competence in their areas of specialization. Little attention is given to the impact such activities have on the way preservice teachers learn. Considering the importance of deep approach to learning on learning outcomes, it would seem necessary for practice to better understand these associations which can then be expanded to innovations or changes to teacher preparation. The tool chosen to assess approaches to

learning for the present study is the well-used Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) (Biggs, Kember, & Leung, 2001).

The R-SPQ-2F is chosen because it has been used in other cross-cultural studies, and its revision from the original Study Process Questionnaire makes it more accepting to cross-cultural studies (Smith, 2005). However, despite an instrument's wide acceptance, King, Ganotice, and Watkins (2012) caution that "it is necessary to first validate an instrument when it is to be used in a new setting" (p. 149) and that "the issue of validity is addressed before the results … with different cultures can be interpreted" (p. 139). Therefore, the aim of this study is to, firstly, validate the R-SPQ-2F with a group of Malaysian preservice teachers and, secondly, to determine the associations between approaches to learning and learning outcomes.

Measuring Approaches to Learning Across Cultures

From the theoretical background established by Marton and Saljo (1976), instruments to measure approaches to learning have been developed. These self-reporting instruments measure recognizable motives and strategies, from the perspective of learners' personal characteristics and prior learning experiences (Biggs, 1987). One of the most frequently used instruments, the Study Process Questionnaire (SPQ) developed by Biggs (1987), measures three approaches to learning, namely, "deep," "surface," and "achieving," each having a motive and strategy subscale.

In the early 1980s, the scales and subscales of the SPQ were found to be reliable among Australian (Biggs, 1987; Watkins & Hattie, 1981) and British tertiary students (O'Neil & Child, 1984). The use of SPQ began to grow when universities in Australia and the United Kingdom started to include more international students from various countries and cultures, and there was the need to investigate the approaches of learning of international students in comparative and cross-cultural studies. It was found that it had some reliability issues and inconsistencies have arisen. Kember and Gow (1990) in their study of Hong Kong students found that the deep approach constructs were stable but less so for the achieving and surface construct. Similarly, Richardson (1994) found that there was ambiguity in the interpretation of the surface construct.

From the 1990s and onward, cross-cultural research on approaches to learning began to be focused on comparative studies between South East Asian students and students from Western contexts. Volet, Renshaw, and Tietze (1994) found that Asian students had greater deep and achieving approaches than their Australian counterparts. Conversely, Ramburuth (2000) did not find any significant differences between Australian and Asian students in their approach to learning. Nevertheless Ramburuth's (2000) study showed that deep and surface were not dichotomous, but in fact students could exhibit both a deep and surface approach at the same time. The study called into question the assumption that students from non-Western countries were much more prone to memorization than Western student. Ramburuth

(2000) queried if the approaches to learning framework measured by the SPQ could be disadvantageous for students from different cultural backgrounds.

Since the SPQ was developed based on Western ideas of education, it was also criticized whether its development took into account contextual and cross-cultural influences (Richardson, 1994). Richardson (1994) cautioned about SPQ's use to generalize approaches to learning across cultures, since most of its cross-cultural studies were conducted in South East Asia and with domestic Western students. Attempts to further validate the SPQ saw its use beyond South East Asian and Western contexts, for example, in Nepal (Watkins & Regmi, 1990), Nigeria (Akande, 1998; Watkins & Akande, 1992), China (Zhang, 2000), and the United Arab Emirates (Hassan, 2002). Although the cross-cultural studies essentially found that the SPQ was a valid instrument for measuring approaches to learning, the studies also found that the SPQ was better represented as a two-factor approach. In fact, Hattie and Watkins (1981) sounded a cautionary note when they found that the SPQ had poor internal consistency and loaded onto two factors instead of three when it was used with students from the Philippines. This was reiterated by Kember, Wong, and Leung (1999) who observed that a two-factor model was better and stated that any future revision should also take cultural differences into consideration. The authors suggested that while intrinsic motivation was relevant, displaying extrinsic motivation was not necessarily negative; in fact students often presented both kinds of motivation. For instance, securing a job upon graduating was seen as a motivation to work hard indicating an interweaving of intrinsic and extrinsic motivation (Watkins, 2001). In addition, there was also a need to revise the SPQ so that it contained a better understanding between memorization and understanding (Smith, 2005).

This prompted Biggs et al. (2001) to develop a two-factor model measuring two main scales of deep and surface approach. The previous achieving scale was allowed to load onto these two factors. The revised SPQ was named the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F), and changes were made to some of the wordings to make it relevant and to better reflect the changes in higher education since the original SPQ was conceptualized. Since its revision, researchers have been inclined to choose the R-SPQ-2F over other approaches to learning measurement tools as it has been seen as an extension of the original SPQ which has undergone extensive research.

Although Biggs et al. (2001) have recommended that the R-SPQ-2F is a useful tool to evaluate students' approaches to learning and their learning outcomes, Immekus and Imbrie (2010) have cautioned that the R-SPQ-2F still needs to be assessed to be used with students from different cultural backgrounds. Similarly Leung, Ginns, and Kember (2008) warn that its psychometric properties must be tested in any new context before it can be used for any educational endeavors.

Method

Participants

The participants for this study comprised of 478 second, third, and fourth year pre-service teachers (age $M = 21.86$; $SD = 0.60$) in a teacher education university in Malaysia. No first year preservice teachers were involved as it was considered important that preservice teachers who participated in the study were established in their place of learning and have formed a certain learning habit. Data from the samples were collected at the end of the 2013/2014 semester.

Data Sources

Data were collected through four sources: two questionnaires, preservice teachers' CGPA for the semester, and an item "Overall I am satisfied with the quality of this program" which was rated on a five-point Likert scale from 1 ("Strongly disagree") to 5 ("Strongly agree").

Six-Item Generic Skills Scale The first questionnaire measured preservice teachers' development and acquisition of their generic skills (problem-solving, critical and analytical skills, and their ability to work together as a team). The 6-item scale (Wilson, Lizzio & Ramsden, 1997) was a Malay language translated version which had previously been shown to be reliable with Malaysian higher education students (Goh, 2006). Preservice teachers' responses were recorded on a five-point scale of 1 ("Strongly disagree") to 5 ("Strongly agree"). Summing the scores on the appropriate items provided scores on the scale. The minimum and maximum scores that could be received by a preservice teacher varied between 5 and 30. The Cronbach's alpha reliability coefficient of the 6-item scale in the present study was 0.84.

The Malay Language R-SPQ-2 F To measure student teachers' approaches to learning, the present study used a Malay language translated version of the R-SPQ-2 F. The R-SPQ-2 F was translated following an independent translation (through a professional certified translator) and back translation (through the author's colleague who was also a trained translator) (Brislin, 1980). Minor wording adjustments were made to the final version. The original English version and the back-translated version were very similar. It is noteworthy to say that like all other rigorously developed measures, the R-SPQ-2F is written in an unambiguous and straightforward language. It is a self-report questionnaire and it consists of 20 items measuring two main scales of deep approach and surface approach, each having a motive and strategy subscale. Each of the subscales contains five items. Each item within the subscales is rated on a five-point Likert scale: 1 ("This item is never or only rarely true of me") and 5 ("This item is always or almost always true of me"). Subscale scores are calculated by summing up the scores on the relevant items. All

items are positively worded so that no recoding is necessary when scoring the questionnaire. Subscale scores range from five to 25 with higher scores indicating those who make a greater use of that approach to learning.

Results

Analysis of the Malay Language R-SPQ-2F

The Cronbach's alpha values for the Malay language R-SPQ-2 F used in this study were acceptable: deep approach to learning had Cronbach's alpha of 0.70 and surface approach to learning had Cronbach's alpha of 0.71. Testing of the 20 items was conducted using a confirmatory factor analysis (CFA) to verify its factor structure. Several goodness-of-fit indices were used to determine model fit, namely, the goodness-of-fit index (GFI), the adjusted goodness-of-fit (AGFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The GFI, AGFI, and CFI values equal or greater than 0.90 and an RMSEA value equal to or smaller than 0.05 were taken as an indication that the data showed a relatively good fit. However, the RMSEA value of less than 0.08 (90 % confidence level) could also be used as indicators of a relatively good fit (Schumacker & Lomax, 2004).

The results in this study showed that the two-factor model fitted the data fairly well ($x^2 = 397.96$; d$f = 169$; $x^2/$d$f = 2.35$; $p < 0.001$; GFI$ = 0.92$, AGFI$ = 0.90$, CFI$ = 0.86$, RMSEA$ = 0.06$). Although the chi-square statistic was not satisfactory, the small x^2 value relative to its degree of freedom was indicative of good fit as Kline (1998) suggested that a $x^2/$df ratio of 3 or less is a reasonably good indicator of model fit. The CFI fell short of the required 0.90. However, Raykov (2005) has argued that the CFI should not be the only indication of model fit, and if the other goodness-of-fit indices (GFI, AGFI, and RMSEA) were all within the general guidelines, the model can be considered an acceptable fit. This did not come as a surprise as the back translation process of the questionnaire was done very strictly by two professional translators in terms of the items' meanings, words, and concepts (King et al., 2012).

As the Malay language version of the R-SPQ-2F was found to be sufficiently valid, the approaches to learning of preservice teachers to their learning outcomes were subsequently analyzed by means of descriptive statistics and by correlation analysis.

Analysis of Approaches to Learning and Learning Outcomes

The descriptive statistics for approaches to learning used in the present study are shown in Table 13.1. It shows that the sample in this study has a higher deep approach score compared to the scores for the surface approaches. When a scatter plot is used (Fig. 13.1), it indicates that most preservice teachers' approaches to

Table 13.1 Mean and standard deviation of deep and surface approaches to learning

Approaches	Mean	SD
Deep approach	31.67	5.98
Surface approach	24.63	5.84
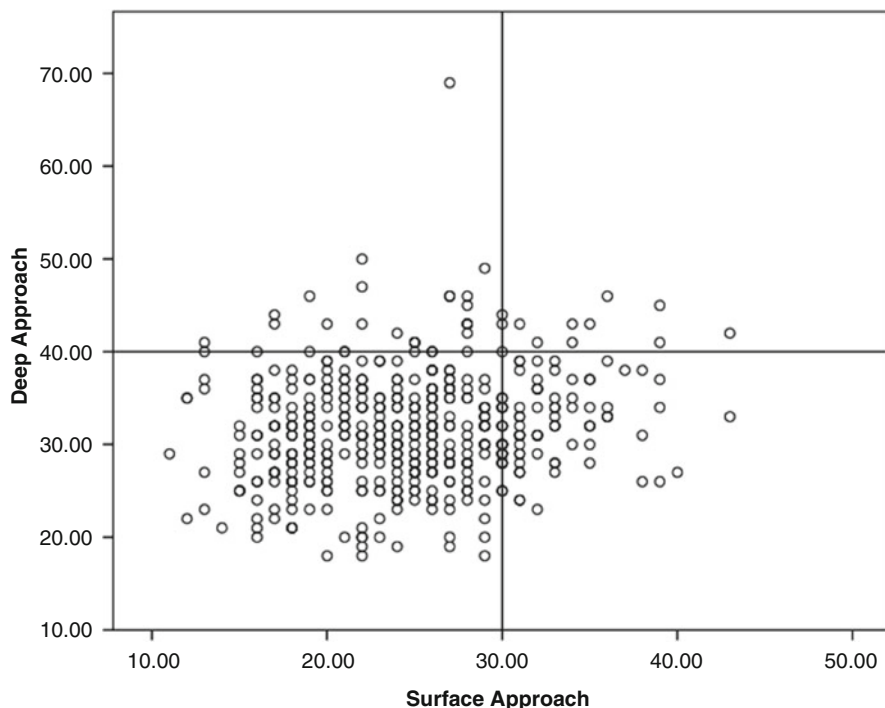
Fig. 13.1 Plot of approaches to learning

learning fitted into two groups. The first group is those with high scores for deep learning and low scores for surface learning, while the second group has low scores for both the deep learning and surface learning.

The correlations between student teachers' approaches to learning, achievement through the CGPA, generic skills and overall satisfaction are shown in Table 13.2.

Positive associations were found between deep approaches to learning, generic skills, and the overall satisfaction, while surface approach to learning had negative correlation with overall satisfaction. Preservice teachers who were oriented toward deep understanding of their learning were more likely to acquire the required generic skills and also feel satisfied in their studies. Inversely, those preservice teachers who relied on memory and rote learning without understanding were more likely to feel greater dissatisfaction in their overall learning. Those preservice teachers who acquired greater generic skills were also more fulfilled in

Table 13.2 Correlations of the various measures used in the study

Measures	1	2	3	4	5
Deep approaches	1.00				
Surface approaches	−0.18**	1.00			
Achievement (CGPA)	0.09	−0.05	1.00		
Generic skills	0.35**	−0.02	0.09	1.00	
Overall satisfaction	0.18**	−0.12**	0.05	0.61**	1.00

**Correlation is significant at the 0.01 level

their own learning. However, the achievement as measured through the CGPA for preservice teachers adopting the deep or surface approaches to learning was not statistically different.

Discussion

Upon the validation of the Malay language R-SPQ-2F for use among Malaysian preservice teachers, the study examines how preservice teachers' approaches to learning are associated with their learning outcomes as measured by their achievement (through their CGPA), their acquisition of generic skills (problem-solving ability, critical and analytical skills, and their ability to work together as a team), and their overall satisfaction with their learning. This has been prompted by the recognition that preservice teachers' approaches to learning have an important impact on their academic success and successes as future in-service teachers.

It has been suggested that higher education students who enter the field of education with the aim of becoming teachers were more likely to employ deep approach to learning (Gordon & Debus, 2002). This seemed to be true with the present sample of preservice teachers in this study. Scores for deep approach to learning were higher than for surface approach to learning. It can be interpreted that for these preservice teachers, they were determined to understand what was needed to be successful in their studies and to interact critically with their learning. However, there were a few preservice teachers who had low scores for both deep and surface approaches to learning. Gijbels, van de Watering, Dochy, and van den Bossche (2005) have commented that this could occur among new students because they had not quite adjusted to the new learning situation. It appears that they "lack the meta-cognitive skills to evaluate how functional their study practices were in their learning environment, and admitted to having problems with their study strategy. Many of the students realized that their study methods were not suitable … but they did not know how to develop them" (Lindblom-Ylanne, 2003, p. 73). Such phenomenon might also occur among preservice teachers as they grapple with their new subjects and their lack of confidence about understanding the subjects and trying to make sense of new information and ideas about teaching and at the same time trying to achieve high standards in their studies.

The results of the correlational analysis indicated positive associations between preservice teachers' deep approaches to learning and the acquisition of generic skills. It can be inferred that if preservice teachers adopted a deep approach to learning, the greater their ability to problem-solve critically and analytically and possess the ability to work effectively as a group. This result supports similar findings by Ramsden (2003) and Gordon and Debus (2002). A qualitative study by Goh (2008) also supported this finding where students who adopted deep approaches to learning reported that they were more able to work through problems logically and analytically. With the adoption of deep approaches, students also reported attitudinal gains such as improvement in self-esteem, being more confident, and acquired greater enjoyment working on assignments with their friends. What is of interest to note is that the qualitative data also suggests that students who adopted deep approaches also used memorization in their learning; however, this does not mean that students discard attempts at seeing conceptual purposes or are unwilling to consider deep meanings of what they studied. On the other hand, students felt that using surface approaches to learning undermined their confidence, their participation, and actual understanding of their learning.

The findings showed positive association between the overall satisfaction of preservice teachers and their adoption of deep approach to learning. There was higher overall satisfaction shown for preservice teachers who adopted deep approaches to learning. Inversely, the decrease in level of preservice teachers' overall satisfaction was associated with those who adopted a surface approach. The findings agree with previous research that have shown that students who find enjoyment and satisfaction in their subject matter adopted a deep approach, and those who were not interested in their learning adopted a surface approach partly due also to the fear of failing (Biggs, 2001).

Although deep or surface approaches are expected to have strong correlation toward academic achievement (in this study through the CGPA), the present study proved otherwise. However, the result is similar to various studies (e.g., Gijbels, et al., 2005; Minbashian, Huon, & Bird, 2004) which showed no correlation between approaches to learning and academic outcomes. There is a possibility that the assessment system in the teacher education program does not reward deep approaches to learning, and some assessments only assess knowledge sufficient for the use of a surface approach. However, poor allocation of assignments, inappropriate assessment procedures which encouraged reproduction, and poor perception of the relevance of assessments have been found to create confusion among students and were likely to contribute to students feeling stressed and anxious, being tired, or using surface means of learning to get by (Case & Gunstone, 2003; Goh, 2006).

Conclusion

What has this study shown and what are the various implications attached to it? When a CFA was conducted on the data of the Malay language version of the R-SPQ-2F collected from 478 preservice teachers in a teacher education

university in Malaysia, it showed a fairly good fit with the two-factor model as reported by Biggs et al. (2001). It would appear that the R-SPQ-2F is culturally applicable and that the posited structure is found when a translated version is used with this group of preservice teachers in a Malaysian context. The present study did not provide a representative picture of the approaches to learning of other higher education students in Malaysia but only that of preservice teachers in one teacher education university; hence additional study will be needed to further confirm the validity of the Malay language version of the R-SPQ-2 F. As Biggs et al. cautioned, the data from the questionnaire is context bound, that is, if a student were to complete the questionnaire for another study context, the scores might be different.

These findings somewhat confirm previous results regarding the associations between approaches to learning and learning outcomes (achievement, acquisition of generic skills, and overall satisfaction). However, the findings also conflict with other studies that have found a relation between approaches to learning and academic achievement. It is difficult to find a precise reason for this result as Wolters (2004) once stated that "these relations are less than straightforward" (p. 238). However, how the preservice teachers are assessed might be one of the factors implicated, but additional studies are needed to address this issue empirically, including the amount of assessment task allocated.

There are some limitations attached to the findings of this study. Firstly, the Malay language R-SPQ-2F is a self-report questionnaire which asked the preservice teachers to provide a perception of their own approaches to learning and is not a direct measure of the approaches to learning actually used. Secondly, the preservice teachers have been requested to provide their student identification number to enable the researcher to retrieve their CGPA scores. This may possibly influence their willingness to be truthful about their true perceptions of their approaches to learning. Thirdly, although the instrument yielded a fairly good fit with the two-factor model, a more robust fit with a higher goodness of fit in the CFI would provide greater confidence in analyzing the data about approaches to learning. Fourthly, the sample comes from a rather homogeneous group – only preservice teachers. Some possibilities of overcoming these limitations include (1) using interviews and observation, (2) different measures of learning outcomes and not restricting to quantitative outcomes only but also qualitative outcomes, and (3) varied groups of students (e.g., law students, accounting students).

Despite these limitations but with a reminder for the need to be cautious, the results suggest some implications. Foremost, it would be worthwhile for teacher educators to pay attention not only to teacher preparation content but how their preservice teachers are experiencing the learning. Reflection on this issue might lead teacher educators to reexamine some aspects of how preservice teachers are taught. Although no causality links could be deduced from the correlations, the findings suggest that the adoption of a deep approach is associated with greater acquisition of generic skills. Active learning, group collaborative learning, and problem-based learning are learning dynamics which are found to encourage deep learning and bring about improved acquisition of generic skills (Gordon et al.,

2001). In addition, the findings emphasize preservice teachers' satisfaction in their learning on their approaches to learning; hence activities that can further increase this enjoyment in learning should lead to improved educational outcomes. The findings might also be taken as a reminder that efforts invested in selecting methods of teaching and using and implementing methods of learning assessment should also be considered. Teacher educators must be aware that their teaching practices can affect the intention of the students (Gordon et al., 2001; Gordon & Debus, 2002) and that they must provide a learning environment where preservice teachers can develop strong personal fulfillment. The first step toward encouraging preservice teachers toward a deep learning is a high level of student commitment and satisfaction with their learning subject so as to be motivated toward learning with understanding (Ramsden, 2003).

While a deep approach to learning should be the aim and of itself, essentially at a period in Malaysian education system when the ability to be critical and analytical thinkers are recognized as important elements for a successful career in teaching, teacher educators, who are passionate about the profession, should also be interested in whether their teaching and interaction in the classrooms are able to influence preservice teachers adopting a deep approach. The relationships between approaches to learning and the learning environments are as important as the relationships between approaches to learning and learning outcomes. Essentially, a number of factors within the learning environment are important in the adoption of a deep approach by students, and these include good teaching, interactive teaching, study time, workloads, teachers' enthusiasm, and clear goals and standards (Kember, Ng, Tse, Wong & Pomfret, 1996; Lizzio, Wilson & Simons, 2002; Struyven, Dochy, Janssens & Gielen, 2006); however, whether any of these factors are pertinent to preservice teachers and their adoption of a deep approach need more studies.

It is necessary to take note that this study has somewhat confirmed past findings. Nevertheless, future studies should try to explore areas that are less studied. Preservice teachers need to learn skills which are associated with the concept of self-directed learning and lifelong learning, both of which are necessary in a teaching profession that is becoming increasingly difficult, especially so too in the current climate of rapid economic and cultural changes (Kreber, 2002). Deep approach to learning has been known to be a prerequisite toward supporting preservice teachers as they self-direct their learning or become independent learners (Kreber). However, preparing them to be independent learners of their learning does not merely mean helping them with the "what" and "how" to learn (Kreber, Cranton & Allen, 2000). Self-directed learning or independent learning has been related not only with the concept of lifelong learning but also other education aspirations like social conscience, self-sufficiency, and leadership (Kreber et al., 2000). Morals, beliefs, and efficacy are also other outcome measures that go beyond knowledge and skills of Malaysian preservice teachers, and it remains an important question whether these aspects are related to approaches to learning and would benefit from further studies.

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Chapter 14
The Effects of Culture and Sex on Students' Approaches to Learning: Inspiring Insights from David Watkins' Intellectual Inquiries

Gregory Arief D. Liem

Abstract Watkins (Watkins DA, Ismail M, Contemp Educ Psychol 19:483–488, 1994) argued for the possible link between cross-cultural differences in approaches to learning and in cultural value dimensions such as individualism–collectivism. Based on the data derived from Australia and Indonesia (representing individualist and collectivist societies, respectively), this study unpacked the effects of culture, and also of sex, on approaches to learning by examining the extent to which cross-cultural and sex differences in students' approaches to learning are mediated by cross-cultural and sex differences in the students' values. Relative to the Indonesian students, the Australian students were higher in Self-Enhancement, Openness to Change, Hedonism, and also surface learning approach. The Indonesian students were higher than the Australian students in Self-Transcendence and Conservation values and also achieving learning approach. The boys were higher than the girls on Self-Enhancement and Conservation values and also in achieving and deep learning approaches, whereas the girls were higher than the boys in Self-Transcendence values. Regression analysis indicated that students' values fully mediated the effects of culture and sex on achieving approach and the effect of sex on surface approach. Specifically, while Self-Enhancement and Conservation were positive predictors, Self-Transcendence was a negative predictor of achieving and surface approaches to learning. Hedonism was also a negative predictor of achieving approach. In both instances, values explained significant additional amounts of the variance in approaches to learning. Taken together, the findings attested to the link between individualism and collectivism—measured at the individual level and represented by value orientations—and the adoption of approaches to learning.

Keywords Culture • Sex • Learning approach • Values • Unpacking

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The student approaches to learning (SAL) perspective (Biggs, 1987, 1993) is a learning paradigm that underscores the role of sociocultural and educational contexts in shaping students' academic motivation and engagement. It maintains that what motivates students to learn (i.e., learning motive) and how they engage in learning (i.e., learning strategy)—a combination known as "approach to learning"—are important determinants of academic performance and associated with student psychosocial attributes such as self-esteem, locus of control, and perceptions of learning environment (see, e.g., Watkins, 1996, 2001 for reviews). Biggs (1987, 1993) proposed three types of learning approach, namely, surface, deep, and achieving. Students adopting a surface approach are driven to study by surface motives related to extrinsic factors, such as to get a job or to meet a minimal standard to pass examinations, and typically rely on surface strategies characterized by rote learning with minimal understanding with the aim to regurgitate during examinations. In contrast, students adopting a deep approach are motivated to study by deep motives rooted in their personal interests in learning materials and tend to engage in deep strategies that promote the understanding of the learning materials. Lastly, students adopting an achieving approach desire to excel due to their competitiveness, and this is pursued by studying hard, being "cue conscious," and utilizing strategies that optimize their chances to obtain high grades. These approaches to learning have been widely measured by the Learning Process Questionnaire or LPQ (Biggs, 1987, 1993).

An important element of the SAL theory is the 3P (presage, process, product) model of the classroom learning (Biggs, 1996) in which students' adoption of approaches to learning is posited to be a function of the interplay of students' characteristics (e.g., age, gender, abilities, prior achievement), psychosocial attributes (e.g., beliefs, values, traits, self-concepts), actual and perceived learning environments (e.g., classroom climates, teaching practices, assessment formats and structures), and the sociocultural milieu in which learning takes place. This suggests that students in different cultural and educational settings are likely to approach their learning in contextually unique fashions. Therefore, the SAL perspective is a suitable framework to investigate learning across cultures (Biggs, 1996; Watkins, 1996, 2001).

This chapter reports on a reanalysis of my Ph.D. research data and aims to use value orientations to "unpack" the influence of culture and sex on approaches to learning adopted by high school students in Indonesia and Australia. I am humbled and grateful to find that my Ph.D. work (Liem, 2006, 2007; Liem, Martin, Nair, Bernardo, & Prasetya, 2009, 2011; Liem, Nair, Bernardo, & Prasetya, 2008a, 2008b) was profoundly inspired by the wealth and wisdom of David Watkins' work. This was well reflected in the fact that no less than 30 journal articles, book chapters, monographs, and edited volumes particularly pertinent to approaches to learning and cross-cultural methodologies—two areas at the heart of this chapter—that David had published up to the early 2000s were cited in my Ph.D. dissertation. As far as the writing of this chapter is concerned, David's expertise was also of enormous value and has further benefited me in two ways. First, the study was stimulated by the idea put forward by David in his 1994 *Contemporary Educational*

Psychology paper (Watkins & Ismail, 1994), in which he argued for the possible link between cross-cultural differences in approaches to learning to cross-national differences in individualism–collectivism. This intellectual supposition has inspired the conceptualization of this chapter. Second, upon the need to develop an Indonesian version of the LPQ through a translation and back-translation procedure, David—who was then a Professor in Education in Hong Kong—had served as an expert who willingly helped me in checking the English back-translated version of the LPQ and mailed his detailed feedback—alongside some of his papers—to me in Singapore. This generosity has enhanced the methodological rigor of the Indonesian component of the present study.

Differences in the Adoption of Approaches to Learning

Cross-Cultural Differences

It was once believed that Asian students are more inclined to adopt a surface approach to learning, whereas Western students tend to adopt a deep approach to learning (Biggs, 1996). Such a conception was mainly based on anecdotal observations of Asian students studying in Western educational systems (Biggs, 1992). The fact that Asian students grow up in collectivist societies that adhere to values emphasizing conformity, obedience, submission, deference, and compliance with the authority figures (parents, teachers, elders) seemed to have reinforced the myth of Asian students' preferences for a surface approach to learning. The strong value of education, and its association with securing a well-paid job, socialized in the Asian traditions (Chong & Liem, 2014) had further cemented this misconception.

However, a bulk of findings have now suggested that, relative to Australian students, Asian students in Hong Kong, Singapore, Malaysia, Nepal, and the Philippines reported lower uses of a surface approach to learning and were more likely to use deep and achieving approaches to learning (e.g., Biggs, 1987, 1990; Chang, 1989; Watkins & Ismail, 1994; Watkins, Regmi, & Astilla, 1991). On this pattern, David commented, "Thus it would appear that at least when studying in their own country and using their own language, Malaysian students, like Hong Kong students, tend to report utilizing deeper approaches to learning than do Australian students" (Watkins & Ismail, 1994, p. 487). Further, David noticed that while students in Asian cultures (e.g., Hong Kong, Malaysia) adopted similar approaches to learning, they however exhibited different approaches to learning from their peers in Western cultures (e.g., Australia, the United Kingdom). On the ground of the similarities in cultural values (individualism-collectivism, masculinity-femininity) across most of the Asian countries which are however markedly different from those in the Western countries (Hofstede, 2001; Triandis, 1995), David anticipated, "…, it is hoped that [these] results will ultimately contribute to our understanding of the relationship between cultural dimensions (see Hofstede, 1983) and approach to learning" (Watkins & Ismail, 1994, p. 484). Thus, although the misconception about Asian learners has

been challenged, one overarching question remains, "How does culture influence students' approaches to learning?" The present study aims to explore this.

Sex Differences

Aside from his intellectual inquiry about the role of culture in influencing psycho-social attributes (learning approach, self-concept, forgiveness), a salient feature of David's work has been focused on sex differences (e.g., Lai & Watkins, 1996; Watkins, 1975, 1982; Watkins & Astilla, 1988). In terms of approaches of learning, the pattern of sex differences did not appear to be cross-culturally consistent. While sex differences in certain types and components of the learning approach were found to be nonsignificant in some studies, there was evidence showing that Malaysian boys reported a deeper approach to learning than their female counter-parts (Watkins & Ismail, 1994). Similarly, Hong Kong boys were found to adopt both deeper and more achieving approaches to learning than their female peers (Biggs, 1992). Comparing students in four countries, Watkins et al. (1991) found in their Study 1 that the boys in Australia, Hong Kong, Nepal, and the Philippines were more likely to use surface strategies than the girls in each of these countries. In their Study 2, Watkins et al. revealed significant culture x sex interaction effects indicating that the Filipino and Nepalese girls were higher than the other subgroups in the study on deep approach, surface strategy, and achieving strategy and that the Nepalese girls adopted higher levels of achieving motive relative to the Australian and Filipino samples. It is argued here that sex differences in psychosocial attributes may play a role in sex differences (or lack thereof) in approaches to learning. Thus, the present study aims to explore sex differences in approaches to learning and examine the extent to which these differences are attributable to value orientations.

Explaining Cultural and Sex Differences on Approaches to Learning

It has been argued that culture is a fuzzy construct comprising many different dimensions and layers (Poortinga, van de Vijver, Joe, & van de Koppel, 1987). In this regard, individualism–collectivism is one of the culture- or country-level value orientations that cannot be directly used to explain psychological processes at the individual level (Triandis, 1995). Cross-cultural methodologists (e.g., Bernardo & Liem, 2013; Matsumoto & Yoo, 2006; Smith & Bond, 2003; van de Vijver & Leung, 1997) have recommended researchers to unpack culture to understand its influences on individuals' behaviors (i.e., the dependent variables [DVs] in cross-cultural research). Methodologically, what is required is the inclusion of individual-level context variables or "cultural mediators"; evidence that the cultural mediators are themselves cross-culturally different; and the demonstration that cross-cultural

differences on the DVs are mediated or accounted for by the cultural mediators more strongly than by the cultural membership of the participants (see, e.g., Matsumoto, 2006 for unpacking analysis). Using the same logic, by implication, this analytic framework seems to be applicable to unpack sex differences by demonstrating that sex differences on DVs can be explained by psychosocial attributes which are related to DVs and are themselves different across sexes.

Thus, the purpose of the present study was to unpack the effects of culture and sex using students' value orientations as individual-level cultural mediators in explaining cross-cultural and sex differences in the adoption of approaches to learning. Schwartz (2005) theorizes values as broad, abstract, and trans-situational motivational goals that give rise to individuals' preferences, attitudes, and more specific goals and, hence, serve as guiding principles in behaviors, including students' achievement goals and motivation orientation (Liem, Martin, Porter, & Colmar, 2012; Liem & Nie, 2008). The present study examines the nature and extent to which five dimensions of basic value orientations theorized by Schwartz (2005) – Self-Enhancement, Self-Transcendence, Openness to Change, Conservation, and Hedonism – relate to the three types of approach to learning among students in Indonesia and Australia. According to Schwartz (2005), the motivational goals underlying Self-Enhancement values orient individuals to pursue self-interests, whereas those of Self-Transcendence values guide individuals to concern for the welfare and interests of others. The motivational goals underpinning Openness to Change values emphasize individuals to be independent in action, thought, and feeling as well as readiness for new experience, whereas those of Conservation values guide individuals to prioritize self-restriction and resistance to change and to pursue order and harmony. Lastly, Hedonism is theorized to share the motivational goals of Self-Enhancement and Openness to Change values.

In this study, students who were raised and schooling in Australia—a Western and relatively individualist country—are compared to similar-aged students in Indonesia—an Asian and relatively collectivist society (Hofstede, 2001; Triandis, 1995). Schwartz (2004) has demonstrated that members of individualist cultures on average are higher than those of collectivist nations on Self-Enhancement, Openness to Change, and Hedonism values, whereas people in collectivist societies are in general higher than those in individualist countries on Self-Transcendence and Conservation values. Similarly, gender role socialization has been seen as accountable for sex differences in values. Schwartz and Rubel's (2005) analysis of more than 70,000 participants in 70 countries has shown that males are generally higher than females on Self-Enhancement, Openness to Change, and Hedonism values, whereas females are higher than males on Self-Transcendence and, to a lesser degree, Conservation values.

In view of the literature review, the methodological advancement in cross-cultural research, and also the supposition put forth by David 20 years ago, the study seeks to address the following central research question: "To what extent do cross-cultural and sex differences in students' value orientations explain or mediate cross-cultural and sex differences in approaches to learning?" As the main hypothesis, students' value orientations are expected to explain a larger amount of the

variance in approaches to learning than are their cultural background and sex. In this regard, the unpacking of between-group differences in this study is dependent on the presence of cross-cultural or sex differences in value orientations and approaches to learning. Hence, the following specific hypotheses were tested:

Cross-Cultural Difference Hypotheses

Hypothesis 1a: The Indonesian students would be higher than the Australian students on deep and achieving approaches to learning.
Hypothesis 1b: The Indonesian students would be lower than the Australian students on a surface approach to learning.
Hypothesis 2a: The Indonesian students would be lower than the Australian students on Self-Enhancement, Openness to Change, and Hedonism values.
Hypothesis 2b: The Indonesian students would be higher than the Australian students on Self-Transcendence and Conservation values.

Sex Difference Hypotheses

Hypothesis 3a: The girls would be lower than the boys on Self-Enhancement, Openness to Change, and Hedonism values.
Hypothesis 3b: The girls would be higher than the boys on Self-Transcendence and Conservation values.

Given the lack of consistency of sex differences in approaches to learning, differences in approaches to learning between the boys and the girls in this study were explored.

Method

Participants

Broadly matched samples of Year-10 Indonesian and Australian students were drawn from a coeducational public school in Jakarta and Sydney, respectively. Each of the two cultural samples comprised 230 students, with boys and girls equally represented ($n = 115$). The average age was comparable across samples at 16 years. Participants included in this study were born or had lived in their respective countries for at least 10 years, and they were all citizens of the country where they lived in.

Measures

The same set of two-part surveys was administered to participants in the two countries. In the first part, a list of sociodemographic information was asked, including gender, age, ethnic background, and nationality. The second part comprised

preexisting instruments purported to measure values and approaches to learning. These instruments are described below.

Values

The Portrait Values Questionnaire (PVQ; Schwartz, 2005) was used to assess 10 different orientations of basic human values theorized. The PVQ comprised 40 items which can be classified into 10 value subscales, namely, security (5 items), conformity (4), tradition (4), universalism (6), benevolence (4), self-direction (4), stimulation (3), hedonism (3), achievement (4), and power (3), which can further be subsumed into four higher-order value orientation subscales, namely, Self-Enhancement (combining power and achievement), Self-Transcendence (combining benevolence and universalism), Conservation (combining tradition, security, and conformity), and Openness to Change (combining stimulation and self-direction). Theorizing and research has either integrated Hedonism with Self-Enhancement or Openness to Change or separated it to form a stand-alone value orientation index. The latter was decided due to the apparently salient role of this value orientation in adolescents' lives.

Each of the PVQ items consisted of a two-sentence short verbal portrayal of a person's goals, aspirations, ambitions, wishes, or desires that refer implicitly to the importance of a single value type. To respond to each portrait, participants were asked, *"How much like you is this person?"* Six response choices, ranging from *"Very Much Like Me"* (scored 6) to *"Not Like Me At All"* (scored 1) were provided. The PVQ items use a simplified level of language and are less abstract than those of other value measures. The PVQ was empirically validated and deemed suitable to measure adolescents' values in Indonesia and Australia (Liem et al., 2011). The Cronbach's alpha reliability for the five value orientation subscales in this study is within a similar range to that reported in prior studies with adolescent samples (Schwartz, 2005): Self-Enhancement ($\alpha = .78$ for the Indonesian sample and $\alpha = .82$ for the Australian sample), Self-Transcendence ($\alpha = .72$ for the Indonesian sample and $\alpha = .85$ for the Australian sample), Openness to Change ($\alpha = .76$ for the Indonesian sample and $\alpha = .73$ for the Australian sample), Conservation ($\alpha = .76$ for the Indonesian sample and $\alpha = .81$ for the Australian sample), and Hedonism ($\alpha = .85$ for the Indonesian sample and $\alpha = .69$ for the Australian sample).

Approaches to Learning

The Learning Process Questionnaire (LPQ; Biggs, 1987) is a 36-item instrument developed to measure different types of student learning motive and learning strategy. The LPQ consisted of six subscales: (1) surface motive, (2) surface strategy, (3) deep motive, (4) deep strategy, (5) achieving motive, and (6) achieving strategy. Students were asked to rate the extent to which the items were true or false for them using a five-point Likert scale ranging from "This Item is Never or Rarely True of

Me" (scored 1) to "This Statement is Always or Almost Always True of Me" (scored 5). As reported by Watkins (1996; see also Biggs, 1992), the psychometric properties of the LPQ for use with adolescents in various Asian countries (e.g., Hong Kong, Malaysia, Nepal, the Philippines) were acceptable. Aligned with the SAL model, the six LPQ's motive and strategy subscales in this study could appropriately be represented by a three-factor structure that consisted of achieving, surface, and deep approaches to learning and accounted for 75.15 % and 75.26 % of the variance in the Indonesian and Australian LPQ data sets, respectively. In view of this construct validity evidence, responses to a motive subscale and a strategy subscale of the same type were aggregated to form an approach to learning index. The Cronbach's alpha reliability for the three learning approach subscales was similar to that reported in earlier studies (see Watkins, 1996, 2001): Achieving Approach ($\alpha=.80$ for the Indonesian sample and $\alpha=.79$ for the Australian sample), Surface Approach ($\alpha=.65$ for the Indonesian sample and $\alpha=.68$ for the Australian sample), and Deep Approach ($\alpha=.76$ for the Indonesian sample and $\alpha=.79$ for the Australian sample).

Procedure

As Bahasa Indonesian (BI) is the national language used in Indonesia, the BI version of the PVQ and the LPQ was to be developed. Their development was conducted through a translation and back-translation procedure (van de Vijver & Hambleton, 1996) and with close consultations and iterative correspondence with the original author or expert of the measures (Shalom H. Schwartz for the PVQ and David A. Watkins for the LPQ). The BI measures were then validated with 485 Year-10 students (244 males and 241 females; age mean 16 years) who were similar to the present sample in terms of sociodemographic characteristics. Psychometric properties of these two new BI measures were satisfactory (Liem, 2006; Liem et al., 2011).

Results

Country and Sex Differences on Approaches to Learning

A series of 2×2 ANOVAs were conducted on the approaches to learning data with country or culture and sex as grouping factors. As seen in Table 14.1, the culture main effect on achieving approach was significant, $F(1, 456)=49.53$, $p<.001$, $\eta^2=.10$, indicating that the Indonesian sample was higher on this learning approach than the Australian sample. The sex main effect was also significant, $F(1, 456)=4.91$, $p<.05$, $\eta^2=.01$, showing that the boys in the overall sample were higher on

Table 14.1 Country and sex differences on the means of approaches to learning and values: Results of 2×2 analyses of variance

	Indonesia			Australia			Sex		Culture effect		Gender effect		Culture × Gender effect	
	Total	Male	Female	Total	Male	Female	Male	Female	$F(1,$	η^2	$F(1,$	η^2	$F(1,$	η^2
Achieving Approach	3.41 (0.61)	3.46 (0.63)	3.35 (0.60)	2.99 (0.67)	3.07 (0.66)	2.91 (0.68)	3.26 (0.67)	3.13 (0.69)	49.53***	.10	4.91*	.01	0.14	<.01
Surface Approach	3.08 (0.48)	3.09 (0.48)	3.08 (0.48)	3.20 (0.56)	3.29 (0.55)	3.10 (0.55)	3.19 (0.53)	3.01 (0.52)	5.47*	.01	4.01*	.01	3.83	<.01
Deep Approach	3.37 (0.53)	3.42 (0.57)	3.32 (0.50)	3.30 (0.59)	3.32 (0.59)	3.29 (0.60)	3.37 (0.58)	3.31 (0.54)	1.81	<.01	1.45	<.01	0.56	<.01
Self-Enhancement	3.86 (0.80)	3.94 (0.82)	3.77 (0.79)	4.07 (0.87)	4.22 (0.86)	3.92 (0.87)	4.08 (0.83)	3.85 (0.83)	11.39**	.02	14.26***	.03	1.16	<.01
Self-Transcendence	4.63 (0.52)	4.55 (0.53)	4.70 (0.48)	4.45 (0.76)	4.31 (0.73)	4.59 (0.75)	4.43 (0.68)	4.65 (0.64)	20.53***	.04	30.52***	.06	2.87	.01
Openness to Change	4.18 (0.72)	4.19 (0.75)	4.17 (0.69)	4.73 (0.66)	4.63 (0.64)	4.82 (0.65)	4.41 (0.71)	4.50 (0.72)	118.82***	.21	2.96	.01	5.04*	.01
Conservation	4.41 (0.53)	4.46 (0.54)	4.36 (0.51)	3.82 (0.74)	3.90 (0.77)	3.73 (0.72)	4.18 (0.77)	4.05 (0.73)	190.94***	.30	9.22**	.02	.67	<.01
Hedonism	3.63 (1.25)	3.45 (1.24)	3.81 (1.23)	5.04 (0.82)	5.04 (0.82)	5.05 (0.81)	4.24 (1.26)	4.43 (1.18)	227.90***	.33	3.87	.01	3.52	<.01

Note: *$p<.05$, **$p<.01$, ***$p<.001$

achieving approach to learning than the girls. As for surface approach, the culture main effect was significant, $F(1, 456) = 5.47$, $p < .05$, $\eta^2 = .01$, suggesting that the Indonesian sample was lower on this learning approach than the Australian sample. Similar to achieving approach, the sex main effect was significant, $F(1, 456) = 4.01$, $p < .05$, $\eta^2 = .01$, showing that the boys were higher on surface approach to learning than their female peers. The culture and sex main effects on deep approach to learning were not significant ($p > .05$), neither were the culture x sex interaction effects on any approaches to learning. Taken together, while the result confirmed Hypothesis 1b, it only partially supported Hypothesis 1a as deep approach was not cross-culturally different.

Country and Sex Differences on Values

A series of 2×2 ANOVAs on values produced significant culture main effects on Self-Enhancement, $F(1, 456) = 11.39$, $p < .01$, $\eta^2 = .02$, Self-Transcendence, $F(1, 456) = 20.53$, $p < .001$, $\eta^2 = .04$, Openness to Change, $F(1, 456) = 118.82$, $p < .001$, $\eta^2 = .21$, Conservation, $F(1, 456) = 190.94$, $p < .05$, $\eta^2 = .30$, and Hedonism, $F(1, 456) = 227.90$, $p < .001$, $\eta^2 = .33$. The means suggested that the Indonesian sample was higher than the Australian sample on Self-Transcendence and Conservation, whereas the Australian sample was higher than the Indonesian sample on Self-Enhancement, Openness to Change, and Hedonism values. These findings provided full support to Hypotheses 2a and 2b positing country differences on values. Significant sex main effects were found on Self-Enhancement, $F(1, 456) = 14.26$, $p < .001$, $\eta^2 = .03$, Self-Transcendence, $F(1, 456) = 30.52$, $p < .001$, $\eta^2 = .06$, and Conservation, $F(1, 456) = 9.22$, $p < .01$, $\eta^2 = .02$, indicating that the boys were higher than the girls on Self-Enhancement and Conservation and that the girls were higher than the boys on Self-Transcendence. None of the culture x sex interaction effects was significant ($p > .05$). Altogether, the findings partially confirmed Hypotheses 3a and 3b because Openness to Change and Hedonism were not found to be different between sexes and, contrary to what was predicted, the boys were higher on Conservation than the girls.

Do Country and Sex Differences in Values Explain the Corresponding Differences in Approaches to Learning?

To examine whether the country and sex differences in surface and achieving approaches to learning—the two approaches to learning found to be different across cultures and sexes—were accounted for by value orientations, separate hierarchical multiple regressions predicting the different approaches to learning scores were

performed. Country, sex, and their interaction were entered in Step 1, whereas the five value orientations were entered in Step 2 (see Table 14.2).

Achieving Approach

In Step 1, country and sex ($\beta=-.31$ and $\beta=-.10$, $p<.001$, respectively) significantly predicted achieving approach to learning, suggesting that the Indonesian sample and the boys were higher on achieving approach than the Australian sample and the girls, respectively. The addition of the value variables in Step 2 explained a significant amount of additional variance in achieving approach ($\Delta\beta=.30$, $p<.001$). The regression coefficients for country and sex, which were statistically significant in Step 1, were not significant when value orientations were entered in Step 2, demonstrating that the country and sex differences on achieving approach to learning were fully mediated by the value orientations, particularly those significantly predicting achieving approach to learning, namely, Self-Enhancement and Conservation as positive predictors ($\beta=.32$ and $\beta=.51$, $p<.001$, respectively) and Self-Transcendence and Hedonism as negative predictors ($\beta=-.15$, $p<.01$ and $\beta=-.27$, $p<.001$, respectively). This finding showed that what appeared to be cultural and sex differences on achieving approach may in fact be cultural and sex differences on value orientations that produced the apparent cultural and sex differences on achieving approach.

Surface Approach

In Step 1, country and sex ($\beta=.11$ and $\beta=-.09$, $p<.05$, respectively) significantly predicted surface approach to learning, showing that the Australian sample and the boys were higher on surface approach than the Indonesian sample and the girls, respectively. The inclusion of value orientations in Step 2 explained a significant amount of the variance in surface approach ($\Delta\beta=.09$, $p<.001$). Similar to what was found earlier on achieving approach, the regression coefficient for sex became non-significant in Step 2 suggesting that the sex difference on surface approach to learning was fully mediated by the value orientations, particularly Self-Enhancement ($\beta=.14$, $p<.01$), Self-Transcendence ($\beta=-.13$, $p<.05$), and Conservation ($\beta=.32$, $p<.001$), on which the boys and the girls in the present study were found to be different. However, the regression coefficient for culture remained significant ($\beta=.20$, $p<.01$) in Step 2, suggesting that value orientations did not mediate the country difference in surface approach to learning.

Table 14.2 The role of value orientations in mediating the effects of culture and sex on approaches to learning: Results of hierarchical regression analyses

Predictors	Achieving Approach		Surface Approach	
	1	2	1	2
Country	-.31***	.03	.11*	.20**
Sex	-.10***	-.01	-.09*	-.05
Country x Sex	-.02	-.02	-.08	-.07
Self-Enhancement		.32***		.14**
Self-Transcendence		-.15**		-.13*
Openness to Change		.06		-.03
Conservation		.51***		.32***
Hedonism		-.27***		.10
R^2	.11***	.41***	.03**	.12***
ΔR^2		.30***		.09***

Country (0 = Indonesia, 1 = Australia), Sex (0 = Male, 1 = Female)
*$p < .05$, **$p < .01$, ***$p < .001$

Discussion and Conclusion

The analysis carried out in this study aimed to unpack the effects of culture and sex on approaches to learning adopted by Indonesian and Australian students. The conceptual direction of this study was especially inspired by a research inquiry put forward by David Watkins concerning the possible systematic link between country differences in value orientations and country differences in approaches to learning (Watkins & Ismail, 1994).

Findings demonstrated that, compared with the Australian students, the Indonesian students in the present study utilized more achieving approach to learning and less surface approach to learning. As hypothesized, relative to the Australian students, the Indonesian students more strongly endorsed the two value orientations associated with the pursuit of collective goals: Self-Transcendence and Conservation. In contrast, the Australian students attributed higher importance than the Indonesian students to the three value orientations associated with the pursuit of individual interests: Self-Enhancement, Openness to Change, and Hedonism.

The individual differences in value orientations explained a significant amount of the variance and completely mediated the country difference in achieving approach to learning. Examination of the regression coefficients indicated that students who were high on Self-Enhancement and Conservation values but lower on Hedonism and Self-Transcendence values were more likely to adopt an achieving approach to learning. This suggests that students' adoption of an achieving approach to learning may be guided by the broader aim of attaining socially acclaimed excellence underpinning the motivational goals of Self-Enhancement values which contradict those of Self-Transcendence values that are concerned with the welfare of and equality with others. The adoption of achieving approach to learning also appears to be reinforced by values emphasizing self-restriction but weakened by values prioritizing immediate gratification of one's desires. This seems to show that the pursuit of academic goals requires students to be conscientious and disciplined, which is consistent with the motivational goals of Conservation values but contradicts the motivational goals of Hedonistic values driving students to prioritize nonacademic enjoyment and pleasures likely to impede the attainment of academic goals.

Although value orientations did not mediate the effect of culture on surface approach to learning, the regression coefficients for value orientations showed that students' endorsements of Self-Enhancement and Conservation values lead to their adoption of surface approach to learning. That is, students may see that the adoption of a surface approach to learning enhances their chances of attaining broader future goals, such as obtaining an educational qualification and securing a good job, associated with self-oriented interests socially instilled by parents and teachers. The pursuit of these self-focused goals is, however, in conflict with the motivational goals underlying Self-Transcendence values which emphasize the importance of social welfare and concerns for others. Hence, endorsement of Self-Transcendence values reduces the likelihood of adopting a surface approach to learning.

Findings also demonstrated that, relative to the boys, the girls in the present study adopted less achieving and surface approaches to learning and were lower on Self-Enhancement and Conservation values. The girls, however, were higher than the boys on Self-Transcendence values. The sex differences in these three value orientations were found to completely mediate the sex differences in achieving and surface approaches to learning. Thus, the lower adoptions of achieving and surface approaches to learning by the girls, relative to the boys, could be attributed to the fact that the girls in the present study were lower than the boys on Self-Enhancement and Conservation (the two value orientations that positively predicted achieving and surface approaches to learning) and were higher than the boys on Self-Transcendence (the value orientation that negatively predicted achieving and surface approaches to learning).

On the whole, this study has shown that the differences found between the Indonesian and Australian students or between the boys and the girls in approaches to learning were accounted for, either entirely or partially, by the students' individual differences in value orientations. This demonstrates that what was found to be country or sex differences in approaches to learning may in fact have been group or individual differences in value orientations. In any case, value orientations are a set of cultural mediators relevant to explaining (or unpacking) the role of culture and sex in the adoption of achieving and surface approaches to learning. While the value orientations selected to be the cultural mediators in this study accounted for large and significant amounts of the variance in achieving and surface approaches to learning—larger than those explained by the dichotomous variables of "culture" and sex—there could be other cultural mediators that may further our understanding of the role of culture and sex in shaping the adoption of approaches to learning. Other culture- and sex-bound psychosocial variables that could play an explanatory role as context variables in students' academic motivation and engagement include self-construals, personality traits, social axioms, and social role. Each of these variables deserves a place in future research seeking to unpack cross-cultural and sex differences in learning behaviors, including surface approach to learning which was not mediated by value orientations as found in this study.

Concluding Remarks

David Watkins was among the first who argued for the possibility that country differences in cultural value orientations may explain cross-cultural differences on approaches to learning. David concluded his 1994 *Contemporary Educational Psychology* paper with an optimistic note: "In future research the first author hopes to investigate the culture/learning approach more thoroughly through administration of scales such as the LPQ in at least 20 countries representing a range of Hofstede cultural dimensions such as individualism-collectivism and masculinity-femininity" (Watkins & Ismail, 1994, pp. 487–488). Guided by his research idea and the recent methodological advancement in cross-cultural research, this study

has shown the links between country and sex differences in value orientations and those in approaches to learning by demonstrating one of the possible psychological processes in which culture and gender role socialization may influence the adoption of approaches to learning. There are only two countries involved in this analysis, and this is only a tenth of what David had hoped to accomplish. Nonetheless, I hope that this preliminary study will inspire other researchers to pick up the interest in understanding the influence of culture on student motivation, learning, and performance, just like the inspiring insights I gained from David's intellectual inquiries that he put forward some 20 years ago. Thanks David!

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Part V
Learning Motivation

Chapter 15
The Role of Autonomous Motivation for Academic Engagement of Indonesian Secondary School Students: A Multilevel Modelling Approach

Ridwan Maulana, Michelle Helms-Lorenz, and Wim van de Grift

Abstract Motivational theories coming originally from Western countries, like the self-determination theory, recognize that autonomous motivation provides energy for students to be actively engaged in academic learning. The theory assumes that the importance of autonomous motivation is cross-culturally generalizable. However, it remains inconclusive whether or not findings from past Western research are valid for the Indonesian context. Particularly, it is unclear whether or not the two types of autonomous motivation as conceptualized by the self-determination theory (identified and intrinsic) contribute equally strong to Indonesian students' academic engagement. The present study was designed to examine the relationship between the two types of autonomous motivation and academic engagement in the Indonesian secondary education. Importantly, the hierarchical structure of the data was taken into account. A total of 4000 students (grades 7 to 12) from 200 classes/teachers from 15 secondary schools participated in the study. All students responded to the questionnaires on academic motivation and academic engagement in the middle of the school year. Multilevel modelling was used to analyse the data. Results show that autonomous motivation is significantly and positively related to academic engagement. This means that the higher the level of autonomous motivation, the better the level of academic engagement. Both identified motivation and autonomous motivation are important predictors for students' academic engagement. However, identified motivation could explain more variance in students' academic engagement than intrinsic motivation. Findings suggest that schools should emphasize on providing a stimulating and safe learning environment that is conducive for sustaining students' autonomous motivation (in the Indonesian context).

Keywords Autonomous motivation • Academic engagement • Multilevel analysis • Secondary education

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Rationale

Problems regarding students' lack of engagement in academic tasks have been a global issue in education. Irrespective of various backgrounds, schools have students who are engaged and disengaged. In the USA alone, for instance, approximately 30 % of the students were disengaged (Appleton, Christenson, & Furlong, 2008). In Indonesia (and the neighbouring countries), the conundrum is not expected to be different. In fact, the case could even be more worrying compared to Western schools because the quality of the Indonesian school is threatened by low-quality teaching and large class sizes (Maulana, Opdenakker, Stroet, & Bosker, 2012). In order to enhance the level of students' academic engagement, efforts to further the understanding of the engagement-enhancing factors are called for. According to the self-determination theory, academic motivation is viewed as an essential factor for individuals' active involvement in certain tasks (Ryan & Deci, 2000). The theory describes autonomous motivation, particularly intrinsic motivation, as the motivational instantiation of the proactive, growth-oriented nature of human beings (Ryan & Deci, 2000; Vansteenkiste, Lens, & Deci, 2006). In the Western context, the empirical importance of autonomous motivation for various learning outcomes has been demonstrated (e.g. Connell & Wellborn, 1991; Ryan & Deci, 2000; Skinner & Belmont, 1993).

Studies investigating the relationship between autonomous motivation and academic engagement in collectivistic countries are scarce. To our knowledge, such research conducted in the Indonesian context is not available yet. The fact that most research in this particular topic originates from the Western context triggers a question whether or not similar findings will be evident in the non-Western or collectivistic societies. Revealing similar findings will confirm the universality of the premise of the self-determination theory regarding the significance of autonomous motivation for human active engagement in tasks or activities. Particularly, whether or not autonomous motivation of students in the Indonesian (and the neighbouring countries) context will matter for their academic engagement as much as in the Western context remains inconclusive. Additionally, it remains unclear which particular type of autonomous motivation will matter more for academic engagement of Indonesian students. In the present study, we aim to address this inconclusiveness by investigating the relationship between autonomous motivation and academic engagement in the context of secondary education in Indonesia.

Theoretical Framework

Autonomous Motivation: From Identified to Intrinsic Motivation

The concept of autonomous motivation is fundamental within the framework of self-determination theory (Ryan & Deci, 2000). According to this theory, autonomous motivation can be distinguished into two constructs based on of the locus of causality, namely, *identified* motivation and *intrinsic* motivation. Identification is a

central concept in identified motivation, which refers to "the process of identifying with the values of an activity and thus accepting regulation of the activity as one's own" (Vansteenkiste et al., 2006, p. 21). When individuals foresee an activity as personally relevant, they are likely to identify with its importance. Consequently, the involvement of individuals in certain tasks or activities is strongly based on their volition and willingness. Identified motivation is characterized by an internal locus of causality. However, this type of motivation is still extrinsic in nature (Ryan & Deci, 2000). Although identification represents a fuller form of internalization, it is not fully internalized to the self yet. A student studying math because he/she thinks it is important for her future career is an example of identified motivation. The relative volitional characteristic of identified motivation approximates intrinsic motivation, so this type of motivation is viewed as autonomous (Ryan & Deci, 2000; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

Self-determination theory views intrinsic motivation as the most autonomous type of motivation. Intrinsically motivated behaviours are not energized by physiological drives or their derivatives. When intrinsically motivated, individuals perform an activity because it is personally interesting to them. Thus, the involvement in the activity is fully for their own sake (Deci, 1975). The theory defines intrinsic motivation as "the instantiation of proactive, growth-oriented nature of human beings. This type of motivation is the natural basis for learning and development" (Vansteenkiste et al., 2006, p. 20). A student learning math because he/she enjoys doing it is an example of intrinsic motivation.

Autonomous Motivation and Academic Engagement

According to Maehr and Meyer (1997), motivation can be defined as the direction, intensity and quality of one's energies. It refers to "any force that energizes and directs behaviour. Energy gives behaviour its strength, intensity, and persistence" (Reeve, 2009). This conceptualization answers the question of "why am I doing this?" for a certain behaviour. In this regard, motivation is closely related to underlying psychological processes, including autonomy (Skinner, Wellborn, & Connell, 1990). Autonomous motivation can thus be defined as the quality and intensity of one's energies driven by the self (autonomous). Motivation can be contrasted with academic engagement, which is defined as "energy in action, the connection between person and activity" in the academic context (Russell, Ainley, & Frydenberg, 2005, p. 1). This conceptualization suggests that academic engagement reflects an individual's active involvement in an academic task or activity (Reeve, Jang, Carrell, Jeon, & Barch, 2004). Although motivation is central to understanding academic engagement, motivation and engagement can be seen as a separate concept but not as orthogonal vectors. Individuals could be motivated but not actively engaged in a task (Furrer & Skinner, 2003). In that sense, self-determination theory emphasizes the importance of valuing an activity personally and supports the significance of internalizing the value to the self (autonomous motivation). When individuals fully
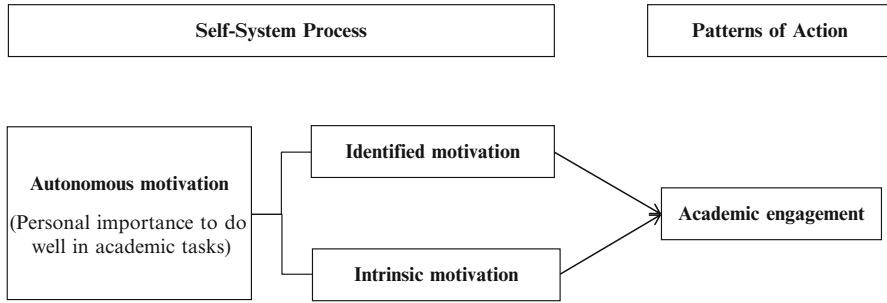
Fig. 15.1 The conceptual model of the relationship between autonomous motivation and academic engagement (Adapted from Appleton et al., 2008)

internalize the value to the self (self-determined), the involvement in a task is viewed as driven by intrinsic force.

From the above conceptualizations, the relationship between motivation and engagement can be seen as linearly positive (see Fig. 15.1). The higher the level of students' autonomous motivation to learn, the higher the level of their academic engagement tends to be. Indeed, past studies in the Western context revealed that more autonomous motivation was associated with more academic engagement (Connell & Wellborn, 1991) and higher-quality learning (Grolnick & Ryan, 1987). However, empirical research also documented that the positive effect of autonomous motivation is not solely limited to enhanced academic engagement but also contributes to decreased school dropout (Vallerand, Fortier, & Guay, 1997), improved well-being (Black & Deci, 2000) and higher achievement (Boggiano, Flink, Shields, Seelbach, & Barrett, 1993; Soenens & Vaansteenkiste, 2005).

In the non-Western and collectivistic societies, studies on effects of autonomous motivation on learning outcomes are rather scarce. However, a limited number of researches indicate the importance of autonomous motivation in this context as well. One study from Japan revealed that students with lower autonomous motivation displayed adjustment problems and negative achievement-related attitudes (Hayamizu, 1997; Yamauci & Tanaka, 1998). Another study from China showed that autonomous motivation predicted adaptive learning attitudes, personal well-being and academic success (Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). Furthermore, a study from South Korea indicated that perceived level of task value, a construct that is conceptually related to autonomous motivation, was a significant predictor of academic engagement and achievement (Joo, Lim, & Kim, 2013). Research from the Philippines showed that enjoyment in learning, which is the core characteristic of intrinsic motivation, was a significant predictor of academic engagement (King, Jennifer, & Gaerlan, 2014). Additionally, research from Hong Kong and the Philippines indicated that motivational engagement was strongly related to learning efforts[1] (King, McInerney, & Watkins, 2013).

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[1] Different researchers use different terms referring to the same meaning. The concept of *effort* is used interchangeably with that of *engagement*.

The Present Study: Objectives and Context

From the literature reviewed, we assume that autonomous motivation seems to be important for students' academic engagement in both the Western and the non-Western context. However, the voids in the body of knowledge, particularly in the context of Asian learners, are visible. First, studies revealed the significant effect of autonomous motivation on engagement, but most of them did not provide an indication regarding the magnitude of the importance. Second, it remains unclear whether the importance of autonomous motivation for academic engagement will apply to the context of Indonesian students as well. Third, even if autonomous motivation plays a role in determining Indonesian students' academic engagement, the extent to which autonomous motivation matters remains unclear as well. Finally, most studies did not examine the importance of identified and intrinsic motivation as separate constructs, while assessing the importance of each motivational type can shed light on explaining the importance of intrinsic motivation relative to that of a more extrinsic type of autonomous motivation.

Hence, the present study was designed to address the mentioned issues by (1) investigating the relationship between autonomous motivation and academic engagement in the context of secondary education in Indonesia and (2) examining the magnitude of the importance of two types of autonomous motivation (identified and intrinsic) for academic engagement by taking into account the hierarchical structure of the data. Understanding the significance and the magnitude of the importance together is useful for two reasons. Scientifically, findings of the present study will serve as a confirmation whether or not the generalizability of past findings regarding the importance of autonomous motivation and academic engagement will be confirmed in a specific, not previously studied, cultural context. Practically, findings of the current research will provide clues for researchers and school practitioners whether or not sustaining students' autonomous motivation (i.e. through innovative interventions) in the effort to enhance active academic engagement of Indonesian students (and other countries sharing similar cultural values) is a necessity.

In the East Asian context like Indonesia, particularly, this information becomes even more important as there is an argument that autonomous motivation is not valued as high as in the Western context. Asian researchers argue that controlled motivation, a concept that can be contrasted with autonomous motivation, also contributes to the learning of East Asian students in an additive way (Leung, 2001; Maulana & Opdenakker, 2013; Zhu & Leung, 2010). In contrast, Western researchers believe that controlled motivation is detrimental for learning, while autonomous motivation should be promoted to maximize learning outcomes.

Culturally, the Indonesian society is collectivist in nature (Hofstede, 1991). This can be contrasted with most Western countries with the individualist culture. The classroom context of a collectivist culture reflects a social unit within the larger unit of hierarchical society. This hierarchical structure suggests that obedience to higher authority figures is highly valued. Furthermore, the Indonesian society is characterized by a very high-power distance index (Hofstede, 1991), suggesting a high level

of inequality of power within the society. Respect for the authority of one's elders, which implicitly regulates the interaction between the young and the old, is a valued commodity (Liem, Martin, Nair, Bernardo, & Prasetya, 2009; Maulana, Opdenakker, den Brok, & Bosker, 2011). Consequently, the distance between students and the older figure (i.e. teachers, parents) is relatively high. The combination of this unique cultural feature may explain the relationship between students' self-interest in learning (autonomous motivation) and their academic engagement.

Methods

Sample and Procedure

A total of 4000 students of 200 teachers/classes from 16 public schools in the West Java province, Indonesia, participated in the present study. The student sample included 1539 boys (39 %) and 2459 girls (61 %). Half of the sample came from junior high schools, and the other half were from senior high schools. A total of 21 % of the students were taught by their teachers for more than a school year, while the rest were taught for the first time during the school year.[2] Student sample consisted of various ethnicities. The majority of students were of the Sundanese ethnic background. All teachers were certified to teach in secondary education. The majority of the teachers were female (62 %). A total of 25 % of the teachers taught science, while the remaining 75 % taught social studies and language.

Participation in the study was voluntary. Surveys were conducted during the school year of 2013. Class sizes were large (ranging from 35 to 40 students) in all participating schools. For the reason of representativeness and parsimony, we randomly selected 20 pupils per teacher/class to participate in the survey.[3]

Instrument

Autonomous Motivation

We used the Indonesian version of the questionnaire on motivational dimension (Maulana & Opdenakker, 2013; Maulana et al., 2011) to tap students' perceptions of identified motivation and intrinsic motivation. Originally, this questionnaire was based on the academic regulation scale of Ryan and Connell (1989). Conceptually,

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[2] In Indonesia, annual rolling in teaching is possible. Therefore, teachers who teach the first grade during the first school year may be assigned to teach the second grade in the subsequent school year. Additionally, some teachers may teach two different grade levels during the same school year. That is why a relatively small number of pupils may have the same teacher for two consecutive school years.

[3] A sample of about 15 pupils per class is generally sufficient to generate (aggregated) class perceptions of motivational variables.

the measure is consistent with the self-determination theory (Ryan & Deci, 2000). The measure of identified motivation consists of four items. Examples of items are "I study this subject because it's personally important to me", and "I study this subject because this is an important life goal to me". The measure of intrinsic motivation has four items as well. Examples of items are "I study this subject because I find it highly interesting", and "I study this subject because I enjoy doing it". All items were provided on a five-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The reliability of this measure is above satisfactory level (Cronbach's $\alpha_{\text{identified motivation}} = 0.87$, Cronbach's $\alpha_{\text{intrinsic motivation}} = 0.88$). Furthermore, results of exploratory factor analysis suggest that two factors with eigenvalues larger than 1 could be extracted. The two factors clearly represent identified motivation and intrinsic motivation constructs. The two factors accounted for 74 % of the variance: Factor 1 explains 60 % of the variance, and factor 2 explains the remaining 14 %. The rotated component matrix (with varimax rotation) clearly indicates that the first four items belong to identified motivation and the remaining four items belong to intrinsic motivation.

Academic Engagement

To tap students' academic engagement, we used the self-reported engagement measure (Van de Grift, 2007). The measure focuses on psychological and behavioural engagement in academic activities, which is theoretically consistent with the research of Maulana et al. (2012). The scale consists of six items provided on a four-point response, ranging from 1 (completely not true) to 4 (completely true). Examples of items are "I participate well during the lesson", "I do my best during the lesson" and "I pay attention during the lesson". The internal consistency of the scale is above the satisfactory level (Cronbach's $\alpha = 0.84$). A check of construct validity using exploratory factor analysis reveals that one factor with eigenvalues larger than 1 could be extracted. The single factor represents the academic engagement construct. The factor accounted for 55 % of the variance.

Analytic Strategy

We conducted multilevel analyses to examine the relationship between autonomous motivation and academic engagement. For hierarchically structured data like ours (students nested within classes/teachers), this statistical technique is the most appropriate for estimating the effects of independent measures on dependent measures taking into account the hierarchical data structure (Snijders & Bosker, 1999). We performed two-level multilevel modelling, with class/teacher at level 2 and students at level 1. Firstly, we estimated an empty model for academic engagement (model 0). Then, we included identified motivation (model 1) and intrinsic motivation (model 2) separately as a predictor of academic engagement. Finally, both types of autonomous motivation and several background variables were included in the

model (model 3). Additionally, possible interaction effects between variables were tested as well. The modelling was done using a stepwise procedure using a statistical program MLwiN (Rasbash, Charlton, Browne, Healy, & Cameron, 2005).

Results

Descriptive statistics show that Indonesian students reported higher levels of identified motivation ($M=4.03$, SD$=0.75$) compared to intrinsic motivation ($M=3.65$, SD$=0.80$; see Table 15.1). The mean difference is significant from 0 ($t_{(3984)}=36.29$, $p<0.00$). This means that students' motivation to learn is influenced by both types of autonomous motivation, but students generally feel that reasons to learn are not fully based on self-interest. Rather, they generally feel that learning is personally important. Students also reported a relatively low level of academic engagement ($M=2.97$, SD$=0.53$).

Based on results of multilevel analyses for academic engagement, we found that 22 % of the variance is attributed to class/teacher level and 78 % of the variance is attributed to student level (see Table 15.2, Model 0). This means that between classes and between students, differences in academic engagement are visible. Compared with differences between classes, differences between students in academic engagement are estimated to be far larger. This suggests that academic engagement is a construct that is strongly attached to individual rather than group levels.

We found that students' perceived autonomous motivation is significantly and positively related to their perceived academic engagement, even after controlling for background variables (see Table 15.2, Model 3). Results suggest that identified motivation and intrinsic motivation can significantly predict academic engagement ($\beta s=0.14$ and 0.13, $ps<0.00$, respectively). Autonomous motivation together explains about 15 % of the variance in academic engagement.[4] Specifically, identified motivation explains about 14 % of the variance in academic engagement, while intrinsic motivation explains about 11 % of the variance. These results suggest that identified motivation and intrinsic motivation are important for students' academic engagement. However, the relationship between identified motivation and academic engagement is slightly stronger compared to intrinsic motivation. In addition, the relationship between intrinsic motivation and academic engagement depends on the grade level; the effect of intrinsic motivation on academic engagement is stronger in senior secondary education ($\beta=0.17$, $p<0.05$) compared to junior secondary education ($\beta=0.13$, $p<0.05$). Additionally, we found that female students reported higher levels of academic engagement compared to male students.[5]

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[4] Identified motivation explains about 14 % of the variance in academic engagement, while intrinsic motivation explains about 11 % of the variance.

[5] The inclusion of background variables in the model is treated as control variables when estimating significant effects of the main variables of interest. Therefore, the discussion of effects of background variables is beyond the scope of this paper.

Table 15.1 Descriptive statistics and correlations between variables

	1	2	3	4	5	6	7	M	SD
1. Identified	–							4.03	0.75
2. Intrinsic	0.63**	–						3.65	0.80
3. Engagement	0.32**	0.31**	–					2.97	0.53
4. Teacher gender	−0.01	0.01	0.01	–				0.62	0.49
5. Teaching subject	0.00	−0.05**	−0.01	0.15**	–			0.75	0.43
6. Student gender	0.07**	0.01	0.11**	0.01	0.04**	–		0.62	0.49
7. Grade level	0.04**	−0.15**	0.08**	0.04**	0.15**	0.21**	–	0.50	0.50
8. Duration taught	0.04*	0.05**	0.05**	−0.06**	−0.01	0.03*	0.06**	0.80	0.40

Note. *$p<0.05$, **$p<0.01$

Table 15.2 Results of multilevel analysis to examine the link between teaching behaviour and academic motivation; parameter estimates

	Academic engagement							
	Model 0		Model 1		Model 2		Model 3	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Fixed effects								
Intercept	2.97***	0.02	2.11***	0.04	2.21	0.04	1.87	0.09
Identified motivation			0.22***	0.01			0.14***	0.02
Intrinsic motivation					0.21***	0.01	0.13***	0.02
Teaching subject							−0.03	0.04
Teacher gender							0.01	0.04
Grade level							0.01	0.09
Student gender							0.26**	0.08
Duration taught							−0.02	0.03
Student gender × identified							−0.03	0.03
Student gender × intrinsic							−0.02	0.02
Grade level × identified							−0.01	0.03
Grade level × intrinsic							0.04*	0.02
Random effects								
Class/teacher level	0.06	0.01	0.05	0.01	0.06	0.01	0.05	0.01
Student level	0.22	0.01	0.19	0.01	0.19	0.01	0.18	0.01
Deviance	5578.76		5138.21		5095.80		4957.44	

Note. *$p<.05$, **$p<.01$, ***$p<.001$

Conclusions and Discussion

The self-determination theory and empirical research originated from the Western context emphasize the importance of autonomous motivation for students' learning outcomes. Empirical research from the Western as well as Asian contexts confirms that autonomous motivation does matter for students' academic engagement. Nevertheless, it remains inconclusive whether this finding also applies to the Indonesian context as well. Specifically, it remains unclear whether or not the two types of autonomous motivation contribute to academic engagement of Indonesian students equally. The current study was designed to shed light on this inconclusiveness.

When comparing the level of identified and intrinsic motivation, we found that in general, students reported higher levels of identified motivation compared with intrinsic motivation. This result suggests that Indonesian students recognized the personal importance of learning, while they did not fully internalize learning as self-determined. This finding can be interpreted that in the Indonesian context, although students experience the joy of learning to some extent, their reasons for learning seem to be influenced by an instrumental force to a larger extent compared to Western students. Indonesian students are able to recognize the importance of academic learning because learning is often seen as a vehicle for future success in school and in life.

With regard to academic engagement, results of multilevel analyses indicated that academic engagement of Indonesian students is largely attributed to an individual characteristic. This confirms research from the Western context suggesting that engagement is viewed as a personal trait (Maulana et al., 2012). However, we also found relatively large between class differences in academic engagement. This has an implication for research and practice, meaning that efforts for enhancing academic engagement can be targeted at the class level. This can be achieved by, for instance, implementing activating teaching methods requiring students to play an active role in classroom learning (i.e. role-playing, discussion group, collaborative work). Obviously, targeting interventions at the class level is more feasible compared to the individual student level.

Furthermore, we found a significant and positive relationship between autonomous motivation and academic engagement. Results suggest that a higher level of autonomous motivation can function as a supportive factor for students' active engagement in academic tasks. This finding is consistent with past research in the Western as well as the Asian context (Connell & Wellborn, 1991; Grolnick & Ryan, 1987; Joo et al., 2013; King et al., 2014; Vansteenkiste et al., 2005; Yamauci & Tanaka, 1998). Thus, our finding confirms the general assumption regarding the importance of autonomous motivation for academic engagement from the Indonesian perspective. More specifically, results revealed that both identified motivation and intrinsic motivation together are important for academic engagement. However, identified motivation could explain more variance in students' academic engagement compared to intrinsic motivation. For Indonesian students, it seems to be that the personal importance of learning could provide more energy for them to engage

in learning than enjoyment or interest in doing it. Perhaps, this finding is not surprising and could be unique for the Indonesian (and other countries sharing similar cultural values) context.

In a developing and collectivistic country like Indonesia, school is considered to be an important vehicle that can bring students to success in the future. To be successful and play a significant role in the collectivistic community is an important goal for individuals in the society. Parents and teachers strongly encourage students to learn hard and do well in school. Students view parents and teachers as respected authority figures. The society expects that students strongly maintain strong cultural values for obeying the old authority figures (Hofstede, 1991; Liem et al., 2009; Maulana et al., 2011). It seems that these two cultural aspects (respect and obedience) are internalized to the self of Indonesian students, so they can perceive the importance of learning. This results in a relatively high level of identified motivation for learning which has a significant effect on their academic engagement. This line of reasoning is partially in line with the importance of social goals (studying for the sake of others) for the Filipino students' academic engagement (King, McInerney, & Watkins, 2012).

Indeed, there is evidence that Asian students became most motivated when authority figures (e.g. parents, teachers) make the choice for them, while Anglo-American students were more motivated when they have a personal choice (Iyenggar & Lepper, 1999). Personal choice is the main facilitator of intrinsic motivation and academic engagement (Deci & Ryan, 2000). Although our study showed that intrinsic motivation is significantly related to engagement, there is an indication that Indonesian student engagement in learning is more highly influenced by personal importance of the task which relates to social orientations as claimed by Yu and Yang (1994) and is in agreement with the research of Iyenggar and Lepper.

The fact that identified motivation could explain more variance in academic engagement may also have something to do with the social context of achievement in the collectivist Indonesian culture. Yu and Yang (1994) found that socially oriented achievement motivation is highly salient in Chinese societies. In Western cultures, individual-oriented achievement motivation is highly salient. In collectivist societies, achievement is pursued for both oneself and the group or the family. In an individualist culture, achievement is viewed as a personal concern (King & McInerney, 2014). It is argued that in the Western culture, achievement is largely seen as a personal effort. In the context of Chinese culture, academic achievement is seen as a social effort (Tao & Hong, 2014). By achieving, a student is expected to bring a significant change (e.g. wealthier and more power) to the family. The situation in the Chinese culture resembles that in the Indonesian culture to a large extent.

Implications for Research and Practice

The present study has implications for research on motivation and engagement. Etic (universal) and emic (culture-specific) aspects were argued to be important when studying specific cultures (King & McInerney, 2014; Triandis, 2002).

Findings that both Indonesian students' identified and intrinsic motivations are related to their academic engagement provide support to the etic aspect of autonomous motivation in predicting engagement in learning. Furthermore, the fact that identified motivation is more salient in predicting engagement compared to intrinsic motivation indicates emic information. The emic information (from the Indonesian context) suggests that although intrinsic interest in learning matters for student engagement, identification of external importance in learning seems to matter more.

The present study has educational implications as well. Teachers teaching in the Indonesian (and neighbouring countries sharing similar cultures) context wanting to increase the level of academic engagement should obtain ample understanding regarding the more significant role of identified motivation compared to intrinsic motivation for student engagement. Specific attention to this concern can lead to adjustments of teaching behaviour that influences identified motivation (and intrinsic motivation) positively. To gain clearer understanding, the role of autonomous motivation for academic engagement should be incorporated in the pre-service as well as the in-service teacher training.

Additionally, our findings also have implications for (Western) multicultural classrooms, particularly for teachers from countries known as WEIRD (Western, educated, industrialized, rich, democratic; see Henrich, Heine, & Norenzayan, 2010, for more information). Until currently, there are numerous Asian (particularly Indonesian) students studying in WEIRD countries. Quite often, Western teachers have insufficient understanding of their students coming from Asian countries regarding their motivational beliefs. Stereotypically, they view these students as hardworking and highly engaged in academic tasks, although they do not seem to enjoy it (externally motivated). This situation can be frustrating for Western teachers who highly value intrinsic motivation as a main reason to engage in learning. Consequently, Asian students are often misunderstood by Western teachers, leading to stress on the part of the students and frustration on the part of the teachers (King & McInerney, 2014). Understanding that identified motivation plays a more important role in academic engagement of Asian students coming from countries like Indonesia is therefore critical, so Western teachers can adapt their instructions properly. Adapting teaching to meet individual students' needs in learning is crucial for their improved achievement (Maulana, Helms-Lorenz, & Van de Grift, 2014; Van de Grift, 2007). Therefore, effective interventions targeting at the mastery of attending to individual students' learning needs for teachers teaching in multicultural classrooms involving Asian learners are called for.

Limitations and Future Directions

Under optimal conditions, self-determination theory posits that students can, at any time, fully internalize a regulation that had been only partially internalized (Vansteenkiste et al., 2006). This implies that (Indonesian) schools should attempt

to create a safe and stimulating learning environment that is conducive for promoting the process of internalization of regulation into one's self. To conclude, the present study supports self-determination theory regarding the generalizability of the important role of autonomous motivation for students' outcomes from the Indonesian perspective. Future research involving more Asian contexts will be beneficial to confirm the generalizability of this theory further.

Regardless of the significance, the present study has one distinct limitation. Although the present study included a very large sample size with ethnically heterogeneous participants, the sample was drawn from one province only. Because Indonesian society has multicultural/multi-ethnic characteristics, some may wonder whether the large sample of participants coming from a single province can be generalized to Indonesia as a whole. Therefore, caution against generalization to the broader context of Indonesia should be taken until a replication study incorporating broader samples is available.

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Chapter 16
The Motivation-Achievement Paradox in International Educational Achievement Tests: Toward a Better Understanding

Jia He and Fons J.R. Van de Vijver

Abstract   There is a recurrent paradox in the data of the Programme for International Student Assessment (PISA): within each participating country, there is a positive correlation between students' learning motivation and achievement; when aggregating the data at country level, this correlation becomes negative. Using PISA data across 64 countries, we investigate the association of motivation and achievement within and between countries and attempt to explain the paradox with three measures indicative of culturally preferred scale usage: cultural response style, overclaiming, and anchoring vignettes. We confirmed the paradox and found that the three measures, in particular anchoring vignettes, could partially explain the negative association between motivation and achievement at country level. Our study is intellectually indebted to the tradition, initiated by David Watkins, to go beyond a simple classification of Chinese learners as focusing on rote memory learning. We illustrate how core Chinese values impinge on educational motivation and achievement and can help to explain seemingly paradoxical cross-cultural differences.

Keywords Motivation • Achievement • Chinese values • Response styles • Overclaiming • Anchoring vignettes

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In the Programme for International Student Assessment (PISA), a large-scale educational survey coordinated by the Organization for Economic Co-operation and Development (OECD), it is often found in all participating countries that students' self-report learning motivation positively predicts science, mathematics, and reading achievement (e.g., Chiu & Chow, 2010; Chiu & Zeng, 2008), which is in line with both Western and non-Western literature (Uguroglu & Walberg, 1979; Watkins, 2009). However, when scores are aggregated at country level and the correlation is computed between countries' average levels of motivation and achievement, a negative correlation is found (the terms culture and country are used interchangeably here). That is, East Asian countries, typically showing *high* scores on achievement in the PISA studies, such as China, Korea, and Japan, tend to have *low* scores on learning motivation. Such a paradox points to challenges in the comparability of data across countries. It deserves research attention to describe and explain the phenomenon. This chapter explores the methodological explanations and substantive interpretations of the paradox. We argue that differences in scale usage, embedded in Confucian cultural values (e.g., the emphasis on modesty in Asia), may fully or partially explain the negative association of motivation and achievement at country level.

In the following, we first review literature on intrinsic and extrinsic motivation in relation to academic achievement; we then describe a Chinese value pattern that we think is relevant for educational motivation and achievement. Next, we introduce three methods (i.e., response style correction, the overclaiming technique, and the anchoring vignette technique) that have been proposed to account for scale usage differences across countries. We use PISA student data from 2012 to illustrate how these methods affect the association between motivation and achievement at country level. Finally, we discuss the substantive interpretation of the paradox.

Intrinsic and Extrinsic Motivation

People who are energized or activated toward an end are considered motivated. Two motivation orientations have been proposed (Ryan & Deci, 2000). *Intrinsic motivation* refers to doing an activity for its inherent satisfaction and enjoyment. It is often measured with self-report of interest in the activity per se. *Extrinsic motivation* refers to doing an activity in order to attain some separable outcomes and is commonly measured with instrumental values of such an activity. It seems a universal finding that intrinsic motivation is positively related to high-quality learning and high achievement; however, studies on the association of extrinsic motivation and achievement showed mixed results, typically with a negative association in Western cultures and a positive association in East Asian cultures (Wang & Guthrie, 2004; Watkins, 2000; Watkins, McInerney, Akande, & Lee, 2003). These differences are possibly due to cultural differences in learning for the sake of oneself or others (e.g., Bernardo & Ismail, 2010; R. B. King, McInerney, & Watkins, 2012b). Using the PISA student data from 2012, we explore whether both types of motivation are

positively associated with academic achievement at individual level and whether the associations at country level show a paradoxical pattern.

Chinese Values and Education

Where does the combination of high achievement and low motivation of Chinese learners come from? We argue that at least part of the explanation could come from Chinese values regarding effort, achievement, effort attribution, and views on the value of education. There is evidence that important people in social contexts of secondary school students (family members, school teachers, and peers) converge in their Confucianism-based view on the high *value of education* (e.g., Chen & Stevenson, 1995). However, other elements of Confucianism are also important. Compared to Western learners, Chinese learners are less inclined to have much confidence in their abilities and to *attribute* success to their own abilities (Mizokawa & Ryckman, 1990). Another important element is the focus on malleable components in performance, notably effort. The emphasis on the role of *effort, combined with the need for continuous self-improvement,* plays an important role. The Chinese saying "contentedness leads to loss, humility leads to gain" illustrates this drive for self-improvement through effort (Leung, 2006). In addition, during socialization, there is an emphasis on modesty and bragging is frowned upon (Xu, Zhang, & Hee, 2014). It is not surprising that self-concept scores of persons from Confucian countries tend to be low (Wilkins, 2004).

The description of this constellation of values, quite different from Western systems of values, is not meant to provide a causal mechanism for the combination of high scores on performance and low scores on motivation. After all, students who exert much effort do not always show a high achievement; furthermore, individual differences among Chinese students are expected to be considerable, thereby challenging the applicability of cultural values to each and every individual in that culture. However, the description clarifies how seemingly paradoxical associations can be interpreted from the backdrop of the Confucian value system. The description also clarifies that the often observed modesty bias and midpoint responding by Chinese and other East Asian participants to surveys (Lee, Jones, Mineyama, & Zhang, 2002; Yu & Murphy, 1993) cannot be simply dismissed as erroneous responding.

Methods to Deal with Scale Usage Differences Across Countries

The paradox in self-reported motivation and academic achievement in the PISA studies may be a result of differential scale usage by students in different countries. We review here three methods that can be applied in the PISA student data to

account for the scale usage preferences. First, the systematic tendency of respondents to use certain portion of the response options independent of item content, known as response styles (Paulhus, 1991), is argued to be associated with cross-cultural variations in students' self-reports (e.g., Watkins, 1996; Watkins & Cheung, 1995). Chen, Lee, and Stevenson (1995) found that East Asian students who emphasize modesty tend to frequently use the middle categories in a Likert scale (i.e., midpoint response style), whereas Central and South American students are more inclined to use the extreme categories in such scales (i.e., extreme response style). Consequently, observed cross-cultural differences in self-report motivation scores may be partly or fully due to these response styles. Using Likert items measuring various constructs in the 2012 PISA study, we extract indexes of extreme and midpoint response styles for each student and their countries and investigate the role of culturally preferred response styles in the paradox.

A second indicator of scale usage differences is related to respondents' self-enhancement tendency. The strategy to maintain a positive image is sensitive to cultural contexts (Sedikides, Gaertner, & Vevea, 2005). It is argued that Westerners tend to self-enhance and show a better-than-average bias in the ability domain, whereas East Asians have a stronger self-criticism focus (Heine, Lehman, Markus, & Kitayama, 1999), which may explain the lower motivation scores in East Asian countries. The overclaiming technique is developed to capture the self-enhancement tendency independent of one's ability. It is expected that overclaiming is higher among Westerners compared with East Asians. Based on respondents' ratings of their knowledge of various persons, events, and products, some of which nonexistent, responses can be analyzed to indicate both self-enhancement bias (overclaiming knowledge of nonexistent concepts) and accuracy (knowledge) (Paulhus, Harms, Bruce, & Lysy, 2003). This technique has been used in the PISA student questionnaire in 2012 (OECD, 2013).

A third approach to deal with scale usage differences involves anchoring vignettes (G. King, Murray, Salomon, & Tandon, 2003). The anchoring vignette technique refers to a procedure in surveys that respondents rate themselves on certain traits and they also rate several hypothetical persons described in written vignettes on the same traits. These hypothetical persons usually differ much in levels of the target traits. For example, one vignette describes a person with a very low level of conscientiousness, the second a medium level of conscientiousness, and the third a very high level of conscientiousness. The idea behind this technique is that by ensuring the presentation of fixed anchors with a predefined standing on the target construct, it becomes possible to understand how identical stimuli are linked to scale usage for each and every individual. Based on how the respondents rate themselves and how they rate these hypothetical persons, a rescaling of respondents' self-report to correct for interpersonal incomparability can be achieved (Hopkins & King, 2010). This technique has been applied in the PISA 2012 student questionnaire (OECD, 2013).

To summarize, we set out to confirm the associations of self-report intrinsic and extrinsic motivation with math achievement within and between countries and

investigate whether response styles, overclaiming, and/or anchoring vignettes can explain this paradox.

Method

Procedure

The PISA student survey in 2012 assessed competencies of 15-year-olds in reading, mathematics, and science (with a focus on mathematics) in over 60 cultures. International experts from participating countries formed a committee, built the assessment frameworks, created and adapted items, and carried out extensive pretests to ensure the validity and reliability of measures (OECD, 2013). Students were recruited through a stratified sampling procedure to represent the schools and the 15-year-old student populations of each country, and they took a background questionnaire and a subset of the cognitive test of different combinations that lasted two hours. The student questionnaire, data, manual, and the assessment frameworks are available on the OECD website (http://www.oecd.org/pisa/pisaproducts/).

Sample

In this study, 478,413 students between the ages of 15 years 3 months and 16 years 2 months from 64 countries were included (Table 16.1). There were 236,900 male students (49.5 %) and 241,513 female students (50.5 %).

Measures

Students' scores on the two types of motivation and math achievement were derived from the data of student background questionnaire and the cognitive test, respectively. Measures of response styles, overclaiming, and anchoring vignettes were utilized with data collected with the student background questionnaire.

Intrinsic motivation to learn math was measured with a four-item Likert scale on math interest. One sample item reads "I look forward to my mathematics lessons." *Extrinsic motivation* to learn math was measured with a four-item scale on instrumental values of studying math (e.g., "Mathematics is an important subject for me because I need it for what I want to study later on"). The response options ranged from 1 (*strongly agree*) to 4 (*strongly disagree*). The reliability of the intrinsic motivation scale across the 64 countries ranged from .77 to .92, with a mean of .88, and that of the extrinsic motivation scale ranged from .79 to .92, with a mean of .88.

Table 16.1 Sample and country-level scores of motivation, response styles, overclaiming, and anchored motivation

Country	Sample size	Intrinsic motivation	Extrinsic motivation	Extreme response style	Midpoint response style	Overclaiming	Intrinsic motivation (anchored)	Extrinsic motivation (anchored)
Albania	4743	3.02	3.31	.40	.59	3.37	.47	.18
United Arab Emirates	11,500	2.84	3.17	.41	.54	2.74	.30	.08
Argentina	5908	2.40	3.01	.37	.57	2.35	−.09	−.07
Australia	14,481	2.36	3.08	.31	.64	2.26	.20	.26
Austria	4755	2.03	2.59	.40	.54	2.00	−.16	−.22
Belgium	8597	2.08	2.62	.30	.64	2.14	−.18	−.22
Bulgaria	5282	2.43	2.89	.34	.61	2.60	−.17	−.24
Brazil	19,204	2.66	3.22	.34	.60	2.46	.13	.13
Canada	21,544	2.33	3.11	.36	.58	2.41	.17	.26
Switzerland	11,229	2.29	2.86	.35	.59	2.12	−.05	−.09
Chile	6856	2.51	3.14	.37	.54	2.46	.16	.15
Colombia	9073	2.67	3.18	.33	.60	2.59	.20	.17
Costa Rica	4602	2.52	3.12	.40	.51	2.33	.24	.19
Czech Republic	5327	2.15	2.78	.28	.67	1.98	−.13	−.13
Germany	5001	2.19	2.80	.37	.56	2.02	.02	−.01
Denmark	7481	2.59	3.12	.30	.63	2.37	.28	.19
Spain	25,313	2.15	2.87	.36	.60	1.74	−.11	−.06
Estonia	4779	2.27	2.93	.29	.68	2.07	.06	.05
Finland	8829	2.18	2.95	.31	.63	1.74	−.09	.05
France	4613	2.26	2.79	.33	.63	2.10	.03	−.10
United Kingdom	12,659	2.38	3.16	.33	.62	2.08	.23	.30
Greece	5125	2.44	2.92	.36	.61	2.18	.02	−.08
Hong Kong-China	4670	2.51	2.74	.27	.67	2.04	.20	−.09

Croatia	5008	2.07	2.72	.32	.61	2.51	-.18	-.19
Hungary	4810	2.14	2.89	.31	.65	2.06	-.32	-.14
Indonesia	5622	2.92	3.21	.28	.70	2.90	.08	-.10
Ireland	5016	2.31	3.01	.33	.62	2.04	.26	.22
Iceland	3508	2.40	3.15	.38	.56	1.72	.20	.31
Israel	5055	2.41	3.11	.39	.54	2.14	.08	.14
Italy	31,073	2.26	2.76	.34	.61	2.35	-.12	-.22
Jordan	7038	2.90	3.23	.47	.51	3.22	.11	-.10
Japan	6351	2.10	2.51	.31	.57	1.65	-.10	-.20
Kazakhstan	5808	2.96	3.21	.35	.64	3.02	.53	.24
Korea	5033	2.13	2.60	.27	.66	1.41	-.20	-.22
Liechtenstein	293	2.36	2.96	.39	.56	2.03	.10	.03
Lithuania	4618	2.36	3.09	.43	.54	2.16	-.02	.03
Luxembourg	5258	2.16	2.67	.38	.56	2.49	-.11	-.21
Latvia	4306	2.24	3.01	.27	.69	2.14	.03	.11
Macao-China	5335	2.39	2.72	.26	.69	2.19	.14	-.07
Mexico	33,806	2.79	3.27	.35	.58	2.59	.34	.23
Montenegro	4744	2.30	2.70	.35	.60	2.87	-.20	-.34
Malaysia	5197	2.99	3.31	.32	.68	2.63	.31	.06
Netherlands	4460	2.02	2.64	.25	.71	2.20	-.17	-.12
Norway	4686	2.16	3.06	.33	.62	NA	-.19	.08
New Zealand	4291	2.36	3.12	.31	.64	2.23	.19	.31
Peru	6035	2.86	3.33	.29	.66	2.87	.49	.35
Poland	4607	2.15	2.81	.31	.66	2.64	-.26	-.23
Portugal	5722	2.36	3.10	.32	.62	2.44	.08	.16
Qatar	10,966	2.75	3.12	.43	.54	2.94	-.03	-.18
Shanghai-China	5177	2.62	2.93	.30	.65	2.04	.61	.33

(continued)

Table 16.1 (continued)

Country	Sample size	Intrinsic motivation	Extrinsic motivation	Extreme response style	Midpoint response style	Overclaiming	Intrinsic motivation (anchored)	Extrinsic motivation (anchored)
Romania	5074	2.66	2.46	.35	.64	2.88	−.21	−.73
Russian Federation	5231	2.50	2.84	.29	.67	2.56	.12	−.04
Singapore	5546	2.93	3.21	.34	.59	2.42	.68	.36
Serbia	4684	2.14	2.85	.34	.60	2.84	−.35	−.20
Slovak Republic	4678	2.12	2.65	.29	.67	2.10	−.41	−.44
Slovenia	5911	2.10	2.75	.30	.63	2.48	−.43	−.39
Sweden	4736	2.38	3.05	.32	.63	1.61	.12	.16
Chinese Taipei	6046	2.33	2.66	.31	.61	1.74	−.12	−.29
Thailand	6606	2.88	3.21	.28	.68	2.97	.26	.04
Tunisia	4407	2.75	3.20	.43	.54	2.44	.18	.08
Turkey	4848	2.62	2.94	.38	.58	2.43	.11	−.15
Uruguay	5315	2.48	3.06	.36	.59	2.08	.08	.07
United States of America	4978	2.35	3.02	.34	.60	2.38	.32	.30
Vietnam	4959	2.82	3.20	.21	.74	1.84	.39	.20
Total	478,413	2.45	2.99	.34	.61	2.33	.08	.02

Both scale scores were reverse coded, so that a higher score on either scale indicated a higher motivation.

Students' *math achievement* was measured with different subsets of the cognitive test. A complex scheme of item administration, national calibrations, international scaling, and student score generation was applied to derive accurate population estimates of achievement scores (for details on the particular design and estimation procedure, consult the PISA technical report) (OECD, 2009, forthcoming). To put it simply, each student was administered only a subtest of the overall cognitive test to minimize test burden; however, by systematically varying items across student groups and using item response theory, it was still possible to derive information about the difficulty of all items. These cognitive data were then scaled using a Rasch model (which allows for missing data, due to the incomplete design), from which student math achievement scores were derived, denoted as plausible values. Plausible values are imputed values that resemble individual test scores and have approximately the same distribution as the latent trait being measured. Five plausible values of math achievement for each student were produced, thus standard analyses with math achievement should be performed on each of the plausible values and the results of each analysis should be combined (OECD, 2009; Rutkowski, Gonzalez, Joncas, & von Davier, 2010).

Extreme response style was extracted from 15 randomly selected attitudinal items (excluding the two motivation scales) with four-point response options in the student background questionnaire. Item content included subjective norms, self-efficacy, math anxiety, math self-concept, teacher support, perceived self-control, and so on. The average inter-item correlation was .07, indicating sufficient item heterogeneity to capture the systematic response tendency rather than the above mentioned traits. The responses on these items were recoded with responses of 1 and 4 as 1 and other values as 0. The reliability of the recoded items ranged from .60 to .80 across countries with a mean of .71. The mean of the recoded items was taken as an index of extreme response style.

Midpoint response style was constructed in a similar manner as extreme response style. Another set of 15 nonoverlapping attitudinal items in the data were chosen (average inter-item correlation = .06) and recoded with responses of 2 and 3 in the 4-point scale as 1 and otherwise 0. The reliability of the recoded items ranged from .64 to .79, with a mean of .74. The mean of the recoded items was taken as an index of midpoint response style.

Three *overclaiming* items (i.e., items referring to concepts that do not exist) were administered along with items on the familiarity with math concepts in 63 countries (the items were not administered in Norway). The response option ranged from 1 (*never heard of it*) to 5 (*know it well, understand the concept*), and the reliability ranged from .46 to .80, with a mean of .64. The mean rating of the three items was taken as an overclaiming score.

Two sets of *anchoring vignettes* (each with three vignettes) were applied to teacher support (on homework) and classroom management (on student interruption and teacher arrival time). The response options were from 1 (*strongly agree*) to 4 (*strongly disagree*). Comparing the relative standing of the self-report rating and the

ratings of the vignettes, the anchoring vignettes were used to rescale the other constructs of the 4-point scales. Details of the procedure are described in a technical report (OECD, forthcoming). Here we use the anchored scale scores of intrinsic and extrinsic motivation provided in the student dataset. Scores of all the measures were first calculated for each student and then averaged across students in the same country to derive country-level scores (Table 16.1).

Results

We describe the results in three parts. We first report the correlation of the two types of motivation and math achievement at both individual and country level to confirm the paradox. We then report the correlations of motivation and achievement at individual and country level taking into consideration the effects of response styles, overclaiming, and the anchoring vignette rescaling. Finally, we report a multilevel model to predict individual-level math achievement with individual-level motivation and country-level response styles and overclaiming.

Association of Motivation and Achievement

The scale scores of intrinsic and extrinsic motivation were correlated with the five plausible values of math achievement at individual level in each country. The median correlations of intrinsic motivation and achievement (among the 5 correlations) ranged from −.13 to .42 across countries, with a median value of .17, and those of extrinsic motivation and achievement ranged from −.11 to .43, with a median value of .13, which indicated that at individual level, there is a trend of a positive association of both intrinsic and extrinsic motivation with achievement, although the effect sizes differed across countries (d'Ailly, 2003; Watkins, 2000).

The median correlations of intrinsic and extrinsic motivation with the five plausible values of achievement at country level were −.53 and −.52, respectively. The paradox in the association between motivation and achievement across levels was confirmed with data of math interest, instrumental values in math, and students' math performance in 64 countries.

Effects of Response Styles, Overclaiming, and Anchoring Vignettes on the Association of Motivation and Achievement

At individual level, the partial correlations of intrinsic motivation with math achievement controlling for extreme and midpoint response style across countries ranged from −.11 to .41, with a median correlation of .15, and those of extrinsic motivation

with math achievement ranged from −.12 to .40, with a median correlation of .11. Controlling for overclaiming, the correlations of intrinsic motivation with math achievement across countries ranged from −.10 to .43, with a median value of .20, and those of extrinsic motivation ranged from −.12 to .46, with a median value of .15. Therefore, there were slight changes of correlations before and after controlling for response styles and overclaiming. Yet, the associations of both types of motivation with math achievement were still positive in either case. The correlations of rescaled intrinsic and extrinsic motivation based on anchoring vignettes with math achievement across countries ranged from .04 to .38 (median .26) and from .02 to .38 (median .20), respectively, indicating that after the rescaling, the positive associations between motivation and achievement largely remained at individual level (Table 16.2).

A visual inspection of country scores on response styles revealed that Asian countries such as Vietnam, Macao-China, Hong Kong-China, Korea, Indonesia, and Thailand ranked among the bottom ten on extreme response style, and the reversed ranking was found for midpoint response style. Similarly, Asian countries including Korea, Japan, Chinese Taipei, and Vietnam ranked among the bottom ten on overclaiming, pointing to a strong response moderation tendency of these countries. A comparison of country rankings before and after anchoring vignette rescaling also revealed the shift of Asian countries. For instance, Shanghai-China ranked 18th in the raw-score measures of intrinsic motivation, but it ranked 2nd after the rescaling.

When the effects of country-level extreme and midpoint response styles, overclaiming, and anchoring vignettes were taken into consideration, the median correlation of intrinsic motivation and achievement dropped from −.52 to −.45, −.32, and −.11, respectively, and that of extrinsic motivation and achievement dropped from −.53 to −.44, −.46, and −.04, respectively. In conclusion, these three methods, especially anchoring vignettes, could partially explain the negative association of motivation and achievement at country level.

Table 16.2 Individual and country-level correlation of motivation and achievement controlling for response styles, overclaiming, and anchoring vignettes

	Individual level		Country level	
Correlation with achievement	Intrinsic motivation	Extrinsic motivation	Intrinsic motivation	Extrinsic motivation
Zero-order correlation	.17	.13	−.53	−.52
Partialing out response styles	.15	.11	−.45	−.44
Partialing out overclaiming	.20	.15	−.32	−.45
Using anchored scale scores	.26	.20	−.11	−.04

Note. Individual-level correlations were median correlations across the five plausible values of achievement and then median correlations across countries; country-level correlations were median correlations across the five plausible values of achievement

Multilevel Analyses of Students' Achievement

To further explore the possible interactive effect of self-report motivation and culturally preferred scale usage on students' math achievement, a multilevel analysis was employed. We predicted students' achievement scores (i.e., the five plausible values of math performance) with students' motivation, the culturally preferred scale usage (i.e., extreme response style or overclaiming at country level), and the cross-level interaction. Midpoint response style was not used to avoid multicollinearity with extreme response style. All variables were standardized to z scores. Following Enders and Tofighi (2007), the individual-level predictor was centered around the group mean and the country-level predictor around the grand mean. In each model, only one individual-level predictor, one country-level predictor, and their interaction were entered. The regression weights for all the five plausible values of math achievement were essentially the same, and the median values of the standardized regression weights are presented in Table 16.3.

As expected, both individual-level intrinsic and extrinsic motivation had a positive effect on students' math achievement. Country-level extreme response style and overclaiming had a moderate, negative association with students' math achievement. The cross-level interactions were significant, yet weak, indicating that culturally preferred scale usage may be a moderator in the associations of motivation and achievement. Specifically, in countries of high extreme response style and/or high overclaiming, the positive association of self-report motivation is less strong than in countries of low extreme response style and/or low overclaiming. For example,

Table 16.3 Results of multilevel analyses

Predictors	Median PV
Model 1	
Level 1: Intrinsic motivation	.15**
Level 2: Extreme response style	−.22**
Cross-level interaction	−.04**
Model 2	
Level 1: Extrinsic motivation	.13**
Level 2: Extreme response style	−.22**
Cross-level interaction	−.02**
Model 3	
Level 1: Intrinsic motivation	.14**
Level 2: Overclaiming	−.30**
Cross-level interaction	−.07**
Model 4	
Level 1: Extrinsic motivation	.13**
Level 2: Overclaiming	−.30**
Cross-level interaction	−.05**

Note. PV plausible values on achievement.
**$p < .01$

Mexico, a country with a high ranking on extreme response style, the individual-level correlation of intrinsic motivation and achievement was .06, whereas, in Korea, a country with a low ranking on extreme response style, the correlation was .42.

Discussion

We studied the paradoxical associations of two types of motivation (intrinsic and extrinsic) and math achievement among students from 64 countries. Correlational analyses showed that self-report motivation and achievement are positively associated at individual level and negatively associated at country level. We found that controlling for individual scale usage differences through measures of response styles, overclaiming, and anchoring vignettes at individual level had differential impacts on the association of motivation and achievement. At country level, we first confirmed that Asian countries tend to have very low scores on extreme response style and overclaiming, and the rescaling based on anchoring vignettes changes the country rankings on the two types of motivation. We found that response styles, overclaiming, and anchoring vignettes can partially explain the negative association of motivation and achievement at country level. Besides, we found in a multilevel design that country-level extreme response style and overclaiming moderated the association of individual's self-report motivation and achievement. We focus our discussion on the interpretation of the paradox and further research directions.

In line with the correction effects of the three culturally preferred scale usage measures at country level, the Confucian value system emphasizing the value of education, modesty, self-criticism, efforts, and continuous self-improvement can provide the conceptual backdrop of the seemingly paradoxical pattern of motivation and achievement. The importance of education, individual effort, and continuous self-improvement in Confucian cultures urges students to compete and perform well (e.g., R. B. King, McInerney, & Watkins, 2012a), whereas the cultural influence of modesty and self-criticism is imprinted on the scale use preferences as measured by response styles, overclaiming, and anchoring vignettes: Asian students use the extreme response style less and the midpoint response style more, tend to overclaim less, and use the response anchors in a way in line with the modesty bias (Chen et al., 1995). Overall, the paradoxical pattern at individual and country level can be in part interpreted by referring to the Confucian value system. Taking these values and culturally preferred scale usage embedded in these values into account, the paradoxical pattern of motivation and achievement is not that unexpected.

However, partialing out the effects of response styles, overclaiming, and anchoring vignettes did not completely reverse the country-level correlation, which points to the need to look for additional methodological explanations. Further research efforts should be made to advance our understanding of the paradox. For instance, intrinsic and extrinsic motivation in the PISA project were measured explicitly, which represent cognitively elaborated constructs, an implicit measure of motivation which represents a more primitive motivational system with affective experi-

ences may be used and compared with the explicit measures (e.g., McClelland, Koestner, & Weinberger, 1989). The constructs of intrinsic and extrinsic motivation may be perceived differently across cultures, so that these constructs may not have the same psychological meaning at individual and country level. Therefore, equivalence of the constructs across countries and across levels of analysis should be pursued (e.g., van de Vijver & Watkins, 2006). Furthermore, other sources of method and item bias may have played a role in the paradox, such as translation difficulties and administration differences across countries. At this stage, we urge researchers to be cautious in interpreting results of direct comparison of country scores of motivation from the aggregated self-reports.

Work on the Chinese learner and on Chinese education, with David Watkins' work as one of the driving forces behind it, has clearly expanded our insight in the link between culture and education. On the one hand, the work has shown that the picture of the Chinese learner as focusing on rote memory learning is a caricature; on the other hand, it has shown how values, deeply ingrained in a culture such as the Confucian value system, can have a major impact on various aspects related to education, ranging from motivation to achievement.

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Chapter 17
Curiosity and Student Learning in General Education in Hong Kong

Shengquan Ye, Ting Kin Ng, Jun Wang, and Tsz Kei Lee

Abstract As an intrinsic motivation to explore new experience and knowledge, curiosity plays an essential role in learning and development. However, in Asian cultures, where tradition and authority are highly respected, people may not be encouraged to develop and utilize their curiosity, even in a learning setting where curiosity is highly valued (e.g., general education). This longitudinal study examined how curiosity affected learning outcomes in general education and how the learning outcomes, in turn, contributed to subsequent development of curiosity among a group of university students in Hong Kong. Two hundred and forty-two participants (59 males and 183 females) responded to the questionnaires at the beginning of Semesters 1 and 2. Learning outcomes were assessed by both objective and subjective measures (i.e., average grade and self-evaluation). Results show that curiosity at the beginning of Semester 1 significantly predicted self-evaluated learning outcomes in Semester 1, which further contributed significantly to curiosity in Semester 2, even when the curiosity in Semester 1 was controlled. By contrast, no significant association was found for the objective measure of learning outcome with curiosity in Semesters 1 and 2. Implications for learning and assessment in general education are discussed.

Keywords Curiosity • General education • Student learning

Interest, Motivation, and Curiosity

Curiosity is commonly defined as an intrinsic desire for novel experience and information (Day, Langevin, Maynes, & Spring, 1972; Litman & Jimerson, 2004; Peterson, & Seligman, 2004). Curiosity is inherent to all human beings, but individuals differ "in their threshold and willingness to experience it" (Peterson & Seligman, 2004, p 126). Since people's width of attention is limited, paying attention to novel

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stimuli is deemed adaptive according to the evolutionary perspective (Peterson & Seligman, 2004). Consistent with this perspective, toddlers often keep exploring the immediate environment around them tirelessly (Engel, 2011). As can be seen, curiosity is an essential facilitator for human development starting from the very beginning of the life cycle (Berlyne, 1960; Engel, 2011; Rubin, 2005).

Particularly, curiosity plays an essential role in learning and education. This could be understood in two ways. First, curiosity can lead to more human exploratory behaviors so as to ease the sense of uncertainty toward novel stimuli (Berlyne, 1950, 1954, 1960). For students, such exploratory behaviors would require them to invest more time and efforts into learning. Derek's (1980) study showed that higher curiosity was correlated with a higher class attendance rate and better academic performance. Second, curiosity tends to evoke deep and interactive learning strategies (Marton & Saljo, 1976a, 1976b), which have been found to be related to better learning outcomes, such as in general education (Prather, Rudolph, & Brissenden, 2011).

Past research in learning and education has indicated that students' interest can positively predict academic performance (Clinton & van den Broek, 2012; Hidi & Renninger, 2006; Lawanto, Santoso, & Liu, 2012; Sorić & Palekčić, 2009). Schiefele (1992) proposed that students tended to pay more attention to and engage in a deeper learning of the materials and contents that they were interested in. Ainley, Hidi, and Berndorff (2002) found that students had a higher level of positive affect and were more persistent in learning when they were interested in the topic. Moreover, students with a high level of interest tended to be self-regulated learners who actively participated in the learning process (Schunk, 1989; Sorić & Palekčić, 2009). It was also found that students who were interested in web-based learning tended to experience more positive emotion during learning (Nummenmaa & Nummenmaa, 2008).

Though the relationship between learning and interest has been well established, the definition of interest tends to be content specific (Hidi & Renninger, 2006). Since students with high interest in one particular area may not necessarily have high interest in another area, it is difficult to generalize the findings and predict student performance across various areas. Different from area-specific curiosity, trait curiosity represents individuals' readiness and willingness to recognize, pursue, and explore in novel and challenging situations (Kashdan, Rose, & Fincham, 2004). Adopting a global trait perspective of curiosity can be useful because trait curiosity could offer a broader and more generalizable explanation and prediction of student performance.

Curiosity and intrinsic motivation are closely related conceptually, and some researchers have used the two terms interchangeably (Kashdan & Yuen, 2007). For example, Ryan and Deci (2000) defined intrinsic motivation as "the inherent tendency to seek out novelty and challenges, to extend and exercise ones' capacities, to explore, and to learn" (p. 70). However, Kashdan et al. (2009) argued that curiosity has some unique characteristics from intrinsic motivation, including interest in new stimuli and an open and receptive attitude toward the target stimuli. Besides, some aspects of curiosity may be related to extrinsic motivation. Litman, Crowson, and

Kolinski (2010) distinguished between interest (I)- and deprivation (D)-type epistemic curiosity (EC) and found that I-type EC was associated with intrinsic motivation, whereas D-type EC was associated with both intrinsic and extrinsic motivations. The reasons are that while I-type EC is activated by opportunities for intellectual exploration leading to intrinsic enjoyment of knowledge acquisition, D-type EC is mainly activated by the extrinsic need to obtain some specific information to solve a problem, even though it also involves intrinsic pleasure of learning. In sum, curiosity and intrinsic motivation are related but separable constructs.

In response to the limitations in the previous studies as reviewed above, the current study attempted to examine how trait curiosity influences learning among university students. In particular, the study focused on student learning in general education, which puts much emphasis on self-directed learning in the pursuit of knowledge that the students are interested in.

Curiosity and General Education

In higher education, university students are expected to be autonomous and independent. The learning environment of universities is more flexible than that of high schools (Glynn, Aultman, & Owens, 2005). More importantly, a prominent feature of modern higher education lies in the inclusion of general education programs. The objectives of general education are not only to equip students with practical skills that can be transferred into their major studies and future careers but also to balance students' knowledge structure (Garg & Garg, 2008; Glynn et al., 2005; Laird, Niskodé-Dossett, & Kuh, 2009). Based on the nature of general education, most universities have applied a structured general education system, which commonly consists of two types (Paulson, 2012). One type of courses is designed to equip students with generic skills such as writing, reading, and communication. The other type of courses is to enrich students' knowledge across different areas such as humanities, social sciences, and natural science.

There are two distinctive characteristics of general education which differentiate it from major studies. Firstly, as mentioned above, most general education courses integrate knowledge from different disciplines. Through acquiring knowledge in various areas, students are expected to achieve a sense of interdisciplinary coherence and integration and develop generic skills such as critical thinking and quantitative reasoning (Glynn et al., 2005; Hall, Culver, & Burge, 2012; Palomba & Banta, 1999). Secondly, general education courses focus on students' learning rather than their performance. Laird, Niskodé-Dossett, & Kuh, (2009) revealed that compared with their colleagues teaching other courses, faculty members teaching general education courses stressed more on deep approaches to learning, active participation in the classroom, and diverse interactions among students. Similarly, Ferrer-Caja and Weiss (2002) found that students were more likely to employ self-improvement rather than social comparisons (e.g., getting good grades) to evaluate academic success when they noticed that learning and participation were the focus of general

education. The underlying mechanism can be logically explained by goal theory (Pintrich & Schunk, 2002), which distinguishes between learning goals (the goals of developing competence) and performance goals (the goals of demonstrating competence). In particular, students' behaviors are largely determined by the value they attach to a specific goal. In general education classes that emphasize the learning process, students should prioritize learning goals over performance goals.

The Hong Kong Context

Though the general education model in the USA has evolved for more than one-and-a-half century, most of the universities in Hong Kong have only implemented general education curriculum systematically in recent years. Hong Kong is a collectivistic Chinese society (Hofstede, 1984) that emphasizes obedience, conformity to social norms, interdependence with significant others, and respect for authority (Hsu, 1981). While some scholars have suggested that being curious and autonomous is universally beneficial and the controlling parenting styles and the great emphasis on academic success in Chinese culture tend to hinder students' development (Barber, Stolz, & Olsen, 2005; Chirkov & Ryan, 2001; Grolnick, 2003), others have contended that compared with conventional achievement goals, curiosity and autonomy are not important development tasks for Chinese people and therefore do not necessarily lead to positive outcomes (Greenfield, Heller, Fuligni, & Maynard, 2003; Markus & Kitayama, 1991). For example, while some studies have shown a significant relationship between Chinese students' curiosity and academic achievement (Lau & Chan, 2001), Kashdan and Yuen (2007) found that curiosity was not associated with public examination scores for Hong Kong secondary school students. Besides, for Western students, intrinsic motivation is an antecedent of deep learning strategies; for Chinese students, deep learning strategies are driven by both intrinsic and extrinsic motivations such as personal ambition, family face, peer support, and material reward (Watkins, 2000; Watkins & Biggs, 1996, 2001). Therefore, whether general courses, which require students' curiosity and autonomy, can be effectively implemented in Chinese societies is unclear and requires further investigations.

Till now, all of the government-funded universities in Hong Kong have included general education courses as compulsory courses (Pang & Wang, 2007). Additionally, most of these universities have established a specialized office to regulate general education. Though general education has received more and more attention in Hong Kong, there exist two major problems.

Firstly, the Hong Kong government has offered no guidelines for general education in higher education (Pang & Wang, 2007). This makes universities' practices of general education different from each other and puts difficulty in systematically analyzing the development of general education in Hong Kong (Liang & Cai, 2006). For instance, in the University of Hong Kong (2014), general education courses are non-credit bearing and cover various topics related to issues of concern in the community, in order to facilitate students' whole-person development and intellectual curiosity.

However, in the City University of Hong Kong (2014), students are required to complete 30 credit units of general education courses that aim to enhance students' capability to think critically, to reason logically and quantitatively, and to communicate effectively. Secondly, though in all government-funded universities in Hong Kong the aims and intended learning outcomes in general education courses are stated explicitly, the actual effectiveness of general education courses is questionable. Students commonly attach less importance to general education courses compared to major studies (Liang & Cai, 2006). As general education is regarded as subordinate to major studies, students tend to devote less time and effort to it. This puts great challenge to the implementation of effective general education in Hong Kong. In this case, investigating how trait curiosity is related to learning in general education may provide insights for education practitioners into how to motivate student learning appropriately and how to develop effective assessment tools.

The Effect of Curiosity on Learning Outcomes in General Education

The distinctive features of general education imply the importance of curiosity. Firstly, research has consistently revealed that students who perceived the course content as useful and important would benefit more from general education (Garg & Garg, 2008; Hooper & Butler, 2008). The general education curriculum seeks to provide students with multidisciplinary knowledge. Thus, highly curious students are likely to benefit more from general education courses as they tend to be more interested in knowledge of various disciplines and perceive the knowledge as useful and important. Secondly, the emphasis on the learning process rather than academic performance matches the notion of intrinsic motivation (Deci & Ryan, 1985). In the educational context, intrinsic motivation is associated with curiosity, mastery orientation, and enjoyment derived from the learning process itself (Gottfried, 1985). As an important antecedent of intrinsic motivation, trait curiosity is expected to be a key motivational factor for learning in general education. Therefore, we formulated the following hypothesis:

Hypothesis 1: Curiosity would predict better subsequent learning outcomes in general education.

The Effect of Learning Outcomes in General Education on the Development of Curiosity

Though curiosity is sometimes defined as a trait, researchers have also regarded it as an attitude or life principle that reflects how people react to novel stimuli and situations. Since general education courses aim to provide students with a wide exposure to knowledge of various domains and emphasize the importance of learning different values and cultural beliefs, they may also promote students' curiosity.

Therefore, apart from the effect of curiosity on learning in general education, the present study attempted to examine how learning in general education would affect the development of curiosity.

Learning in general education may contribute to the development of curiosity in two ways. Firstly, Perlovsky, Bonniot-Cabanac, and Cabanac (2010) revealed that satisfying curiosity by acquiring knowledge is rewarding. From a behavioral approach, behaviors followed by rewarding consequences would be reinforced. Therefore, it is possible that the pleasure derived by acquiring new knowledge may reinforce curiosity.

Secondly, students may engage in more exploratory behaviors after studying general education courses. As a deep learning approach is emphasized in general education, students are encouraged to exhibit exploratory behaviors to discover new knowledge through self-initiated learning rather than learning passively from teachers. As research on curiosity has suggested that exploratory behaviors are manifestation of curiosity (Berlyne, 1950, 1954, 1960), general education courses are expected to enhance students' curiosity. Therefore, the second hypothesis of this study was formulated as follows:

Hypothesis 2: Learning in general education would predict subsequent curiosity.

Method

Participants

In the current longitudinal study, 242 Hong Kong first-year undergraduate students from the City University of Hong Kong completed the survey in the first and the second semesters. Originally, 294 students were recruited at the first time point, and 52 (17.7 %) did not respond to the second survey. Among the valid sample, there were 59 males and 183 females who were aged from 16 to 20 years old ($M = 18.04$, $SD = .67$). Participants were from six different disciplines (business, liberal arts and social sciences, science and engineering, creative media, law, and energy and environment). Participants were enrolled in 79 different general education courses from five areas: (a) English, (b) Chinese civilization, (c) arts and humanities, (d) study of societies, social and business organizations, and (e) science and technology. The most frequently selected courses were "University English," "Chinese Civilization – History and Philosophy," and "Green Economics."

Procedure

At the beginning of the first semester, all first-year undergraduate students from the City University of Hong Kong were invited to take part in the current study via electronic mail. Interested students were required to reply to the invitation email

within 1 week. Each participant then received a link of the online survey. All links were unique and personalized, and only invited participants could get access to the survey. Participants were administered measures of curiosity and demographic characteristics. At the beginning of the second semester (4 months after the first measurement), participants were asked to complete these measures again and report also the learning outcomes in the general education courses enrolled in the first semester. The measures were originally developed in English and were translated into traditional Chinese by a translator and back-translated by a second translator to ensure accuracy and equivalence between the two versions. Participation in the current study was voluntary, and participants received a cash coupon after completing the two online surveys.

Measures

Curiosity

The Curiosity and Exploration Inventory-II (CEI-II; Kashdan et al., 2009) is a revised version of the Curiosity and Exploration Inventory (CEI; Kashdan et al., 2004). The CEI-II contains ten items, with five items measuring the stretching dimension (e.g., "I actively seek as much information as I can in new situations") and another five items measuring the embracing dimension (e.g., "I am the type of person who really enjoys the uncertainty of everyday life") of trait curiosity. Although the stretching and embracing facets of curiosity are conceptually distinct, research in the West have shown that they are highly correlated (e.g., Kashdan et al., 2009, 2013), and some Western studies have only used the overall CEI-II score for analysis (e.g., Kashdan, Afram, Brown, Birnbeck, & Drvoshanov, 2011; Kashdan et al., 2013). In the current study, we used the composite scale score of the CEI-II for analysis instead of the two CEI-II dimensions for two reasons. First, consistent with previous Western findings (Kashdan et al., 2009, 2013), a preliminary analysis showed that stretching and embracing were highly correlated (Semester 1, $r = .80$; Semester 2, $r = .81$). Second, both exploratory factor analyses of Semester 1 and Semester 2 data indicated a one-factor solution. All items were rated on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). Kashdan et al. (2009) reported Cronbach's alpha values ranging from .83 to .86 for the CEI-II. In this study, the scale showed good reliabilities in both Semester 1 ($\alpha = .90$) and Semester 2 ($\alpha = .91$).

Learning Outcome

Learning outcome was operationalized as students' subjective and objective learning outcomes in general education courses at the end of the first semester. Subjective learning outcome was students' self-evaluation of the ten intended learning

Table 17.1 Ten intended learning outcomes for general education

1. Demonstrate the capacity for self-directed learning
2. Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology
3. Demonstrate critical thinking skills
4. Interpret information and numerical data
5. Produce structured, well-organized, and fluent text
6. Demonstrate effective oral communication skills
7. Demonstrate an ability to work effectively in a team
8. Recognize important characteristics of their own culture(s) and at least one other culture and their impact on global issues
9. Value ethical and socially responsible actions
10. Demonstrate the attitude and/or ability to accomplish discovery and/or innovation

Source: City University of Hong Kong (2014)

outcomes (ILOs) in general education courses proposed by the university (City University of Hong Kong, 2014; see Table 17.1 for details). All items were rated on a 7-point Likert scale (1 = not like me at all to 7 = like me at all). The Cronbach's alpha for the ILO measure was .90. In the present study, both the specific ILOs and the composite ILO score were analyzed. Objective learning outcome was the average grade of the general education courses which participants obtained at the end of the first semester. Grades were rated on an 11-point Likert scale (11 = A+ to 1 = F) such that a higher score represented better performance. As the recent study by Silvia and Sanders (2010) showed that curiosity was highly related to intelligence, especially fluid intelligence, the current study controlled participants' previous academic performance (i.e., results of the university entrance examination). In particular, using regression analysis, the average general education course grade was regressed on the university entrance examination score, and the residual of which was then saved for subsequent analysis.

Results

Descriptive Statistics

Table 17.2 presents the descriptive statistics and correlations among the major variables. The mean CEI-II scores were 5.05 (SD = .92) in Semester 1 and 4.90 (SD = .92) in Semester 2. The mean scores of the overall and ten specific subjective learning outcomes were all higher than the scalar midpoint of 4 (M = 4.43 to 5.38, SD = .92 to 1.51), indicating that all subjective learning outcomes were relatively well achieved according to students' perception. Among all the subjective learning outcomes, students averagely rated ILO 7 (demonstrate an ability to work effectively in

Table 17.2 Descriptive statistics and correlations among major variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Semester 1 curiosity	–													
2. Semester 2 curiosity	.70**	–												
3. Average grade	.00	.04	–											
4. ILO	.26**	.47**	.13*	–										
5. ILO 1	.20**	.36**	.10	.68**	–									
6. ILO 2	.22**	.40**	.19**	.75**	.60***	–								
7. ILO 3	.20**	.40**	.10	.78**	.57***	.60**	–							
8. ILO 4	.14*	.31**	.09	.69**	.39***	.46**	.54**	–						
9. ILO 5	.14*	.29**	.11	.75**	.40***	.46**	.52**	.62**	–					
10. ILO 6	.20**	.39**	.07	.78**	.51***	.48**	.55**	.54**	.66**	–				
11. ILO 7	.13*	.23**	.10	.67**	.37***	.46**	.44**	.51**	.49**	.64**	–			
12. ILO 8	.16*	.28**	.06	.70**	.37***	.45**	.48**	.32**	.44**	.39**	.28**	–		
13. ILO 9	.26**	.40**	.04	.78**	.43***	.50**	.52**	.37**	.47**	.52**	.44**	.65**	–	
14. ILO 10	.30**	.43**	.14*	.79**	.46***	.52**	.57**	.43**	.50**	.55**	.41**	.57**	.73**	–
M	5.05	4.90	0.00	4.88	4.95	4.91	4.87	5.04	4.72	5.10	5.38	4.43	4.64	4.78
SD	.92	.92	1.20	.92	1.11	1.24	1.18	1.20	1.29	1.15	1.10	1.51	1.40	1.30
α	.90	.91	–	.90	–	–	–	–	–	–	–	–	–	–

Note. $*p < .05$, $**p < .01$; ILO intended learning outcome

a team) as the best achieved outcome ($M = 5.38$, SD = 1.10), while ILO 8 (recognize important characteristics of their own culture(s) and at least one other culture and their impact on global issues) was averagely the least achieved among all outcomes ($M = 4.43$). Moreover, students' rating on ILO 8 also showed the largest variation, reflecting diverse opinion with regard to whether cultural awareness was facilitated (SD = 1.51). The mean objective learning outcome score of 7.40 (SD = 1.21) represented an average grade between B and B+.
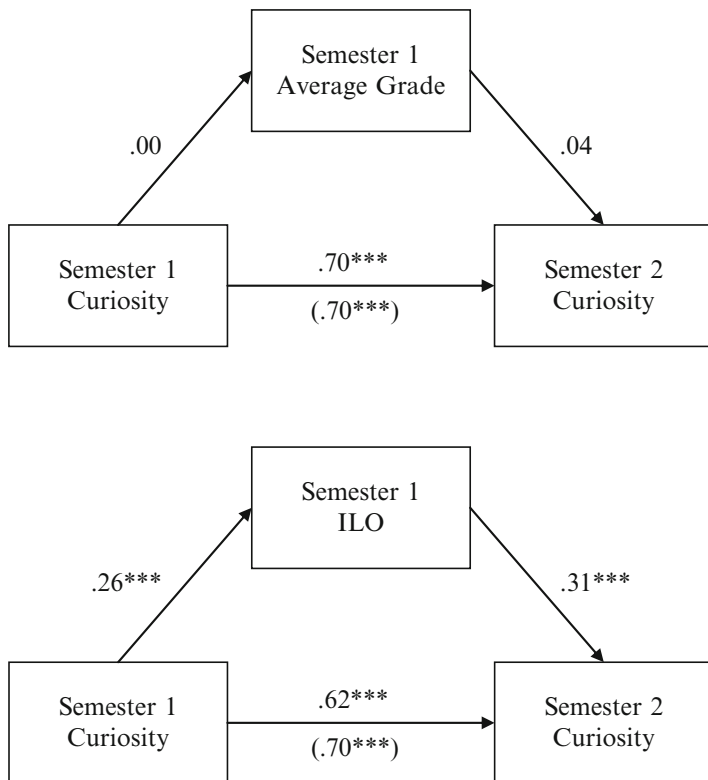
Correlations

Curiosity was highly correlated between Semester 1 and Semester 2 ($r = .70$, $p < .001$). Curiosity in Semesters 1 and 2 was moderately positively correlated with overall and all specific subjective learning outcomes ($r = .13$ to $.47$, $p < .05$). No significant correlation was found for curiosity in Semesters 1 and 2 with the objective learning outcome. The objective learning outcome was only significantly correlated with ILO 2 ($r = .14$, $p < .05$) and 10 ($r = .19$, $p < .01$). These results revealed that objective and subjective outcomes assessed different aspects of students' learning.

Multiple Regression and Mediation Analyses

Multiple regression analyses were conducted to test for the proposed mediating effects of subjective and objective learning outcomes. Specifically, the effect of curiosity in Semester 1 on each learning outcome of general education courses in Semester 1 was estimated. Moreover, the effect of each learning outcome in Semester 1 and that of curiosity in Semester 1 on curiosity in Semester 2 were estimated while controlling for each other. The significance of the mediating effects of subjective and objective learning outcomes on the relationship between curiosity in Semesters 1 and 2 was analyzed using the bootstrapping technique. Bootstrapping is a recently developed statistical method for estimating the significance of an indirect effect in a mediation model (Shrout & Bolger, 2002). Other mediation analysis methods such as Baron and Kenny's approach (1986) or Sobel Test (1982) have been criticized for low statistical power, higher type 1 error, inability to test suppression effect, reliance on assumption of normality of sample data, and being too conservative in detecting an indirect effect when sample size is small. The bootstrapping approach uses the original data as a reference and randomly generates pseudo samples repeatedly to estimate the indirect effect for each bootstrap sample. A confidence interval for the indirect effect can be derived from the bootstrap distribution. If the confidence interval excludes zero, the indirect effect is statistically significant (Shrout & Bolger, 2002).

Fig. 17.1 Mediating effects of Semester 1 learning outcomes on the relationship between curiosity in Semesters 1 and 2. Standardized coefficients are reported. The values in *parentheses* are total effects. *ILO* intended learning outcome. ***$p < .001$

The results of the mediation path analyses are summarized in Fig. 17.1. For the total effect of the independent variable on the dependent variable, curiosity in Semester 1 significantly predicted curiosity in Semester 2 ($\beta = .70$, $p < .001$). For the effect of the independent variable on each mediator, curiosity in Semester 1 significantly predicted the overall subjective learning outcome in Semester 1 ($\beta = .26$, $p < .001$), but not the objective learning outcome in Semester 1 operationalized as the average grade. For the effect of each mediator on the dependent variable after controlling for the independent variable, curiosity in Semester 2 was significantly predicted by overall subjective learning outcome in Semester 1 ($\beta = .31$, $p < .001$), but not the average grade in Semester 1. The direct effect of curiosity in Semester 1 on curiosity in Semester 2 remained significant in both of the analyses of overall subjective learning outcome ($\beta = .62$, $p < .001$) and objective learning outcome ($\beta = .70$, $p < .001$). To test for the significance of the indirect effects, we used the SPSS macro composed by Preacher and Hayes (2008) to construct 95 % bias-corrected confidence intervals (BC 95 % CIs) with 1000 bootstrap resamples. The results showed that the overall subjective learning outcome in Semester 1 signifi-

cantly mediated the effect of curiosity in Semester 1 on curiosity in Semester 2 (standardized indirect effect = .08, BC 95 % CI = .04–.14). The mediating effect of the average grade in Semester 1 was not significant (standardized indirect effect = .00, BC 95 % CI = −.01–.01). In addition, mediation analyses of the ten individual ILOs yielded results similar to the overall objective learning outcome, and the mediating effects of all individual ILOs were significant.

Discussion

The present study aimed to test the interrelationship between curiosity and learning outcomes in general education among Hong Kong first-year university students. The findings show that this relationship depends on how the learning outcomes are measured. Self-evaluated subjective learning outcomes in general education play an important role in students' development of curiosity. However, the objective learning outcome measured as the average grade appears to have no relationship with curiosity. The results of mediation analyses support that subjective learning outcomes in general education in Semester 1 significantly mediate the relationship between curiosity in Semester 1 and Semester 2. These findings could inform local policy makers or educators the importance of the practice of general education.

The Effect of Curiosity on Learning Outcomes in General Education

It was found that curiosity at the beginning of the first semester was positively associated with self-evaluated subjective learning outcomes in general education courses at the end of the first semester, providing partial support to the first hypothesis that curiosity would benefit subsequent learning in general education. The self-evaluated subjective learning outcomes being measured in this study are similar to those essential learning outcomes in liberal education proposed by the Association of American Colleges and Universities (AACU, 2014). Some essential learning outcomes which were related to values and attitudes, such as critical thinking skills and civil knowledge at both local and global levels, were strongly influenced by curiosity. Other learning outcomes which were more specific and could be acquired through practice or experience, like quantitative and information literacy, communication skills, and interpersonal skills, were less strongly related to curiosity. These results echo the suggestion that students with higher curiosity are more open-minded and flexible in accepting new values or things (Kashdan et al., 2009). Thus, students who are higher in curiosity tend to benefit more from general education, particularly on domains related to attitudes and values.

The Effect of Learning Outcomes in General Education on the Development of Curiosity

Furthermore, subjective learning outcomes in general education in Semester 1 were positively associated with curiosity in Semester 2, even when curiosity in Semester 1 was controlled. This finding provides evidence for the second hypothesis that learning in general education facilitates the subsequent development of curiosity. All subjective leaning outcomes in general education were predictive of curiosity in Semester 2. These results support that all of these learning outcomes could place a comprehensive positive effect on the development of curiosity. According to Perlovsky et al. (2010), satisfying curiosity through acquiring knowledge brings pleasure. Thus, students with better achievement of the self-evaluated subjective learning outcomes may be rewarded by a sense of pleasure, which may in turn reinforce their curiosity. The present findings suggest that in order to enhance students' curiosity, educators could place more effort to improve students' subjective learning outcomes, rather than just their objective learning outcomes. Besides, the significant mediating effects of subjective learning outcomes on the relationship between curiosity in Semesters 1 and 2 demonstrated the importance of subjective learning outcomes in affecting students' development of curiosity. Curiosity in Semester 1 was highly correlated with curiosity in Semester 2 ($r = .70$). This result supports the stability of trait curiosity over time. Self-evaluated learning outcomes in Semester 1 show not only a significant prediction of curiosity in Semester 2 but also a significant mediation effect on the relationship between curiosity in Semesters 1 and 2. Thus, general education could be an effective learning process to improve students' curiosity.

Implications for Educational Practice

However, based on the present findings, curiosity was correlated only with self-evaluated learning outcomes, but not the objective learning outcome. This inconsistency between objective and subjective learning outcomes might, therefore, give us some insights on the educational practices in the future.

According to Deci and Ryan (1985), students who were driven by intrinsic motivation tended to focus more on the process of learning rather than their academic performance. Thus, curiosity, which falls under the category of intrinsic motivation, is closely linked with learning goals but not performance (Gottfried, 1985). Hence, students who are high in curiosity may place less emphasis on grades, but focus more on what they have actually learned. This line of reasoning may explain why curiosity is associated with subjective learning outcomes but not the objective learning outcome.

However, such finding might also raise a question on the effectiveness of the assessment tools. The aim of general education is to equip students with a list of

learning outcomes in order to improve their competence, and assessment was an important tool that teachers could utilize in changing students' learning (Watkins, Dahlin, & Ekholm, 2005). However, the inconsistency between objective and subjective learning outcomes might indicate that the assessment criteria of general education courses may not be able to evaluate the intended learning outcomes proposed by the university. Therefore, if this is the case, educators might consider revising the assessment tools for general education courses in order to increase their effectiveness. Fok and Watkins (2007) found that a critical constructivist learning environment facilitated a deeper approach to learning among Chinese students. A critical constructivist learning approach can be implemented through asking students to give real-life examples to explain concepts, giving students real-life problems, encouraging students to test their ideas to predict daily events, sharing their ideas with other students and the teacher, challenging other students' ideas, and engaging in self-reflective thinking (Fok & Watkins, 2007). Additionally, according to Kuh (2008), a list of high-impact educational practices such as service learning, community-based learning, and diversity or global learning aims to enhance students' learning outcomes through exposure to different experiences. These practices have explicitly defined what learning outcomes the teachers would like their students to achieve. Moreover, these teaching and learning practices are not only carried out in a classroom setting but also in real-life situations. The inclusion of real-life scenarios in assessment can evaluate students' ability to apply knowledge to solve practical problems and help students reflect on what they have learned. Thus, different forms of assessment could be developed based on these high-impact educational practices in order to improve the effectiveness of assessment of students' performance in general education courses. However, it was important to note excessive workload might be a factor that hindered students' use of deep learning approach (Watkins, 1982).

Moreover, extra attention should be paid to contextual factors that affect general education in Hong Kong. Traditionally, Chinese people place great value on academic achievement (Stevenson & Lee, 1996). Under the 4-year undergraduate curriculum reform in Hong Kong, some undergraduate programs even use first-year students' GPA as the selection criteria of major allocation. The overemphasis on academic achievement may eventually make grades to be the strongest motivation for Hong Kong undergraduate students to study. Students who are driven by extrinsic motivations such as grades may only work according to the teachers' instructions to secure their grades, without spending any extra effort on creating their own ideas. This learning strategy may restrict and weaken students' creativity and critical thinking, which are the major intended learning outcomes in general education. Moreover, Chinese students have a tendency to adopt the surface approach of role learning (Kember & Watkins, 2010), especially in learning environments where they perceived the workload and assessment to be inappropriate (Watkins, 2001; Webster, Chan, Prosser, & Watkins, 2009). Besides, the emphasis on grades may reduce students' intrinsic motivation to learn because of over-justification (Covington & Müeller, 2001; Baker, 2004). Covington and Müeller (2001) argued that the vast majority of students who define academic success in terms of getting better grades

would be less motivated to satisfy their curiosity. It is because they would spend time and effort to achieve extrinsic rewards such as grades rather than intrinsic satisfaction derived from learning. Thus, the stress of pursuing high grades might reduce students' intrinsic motivation and jeopardize their motivation to satisfy their curiosity. In order to avoid these undesirable consequences, general education should allow students to fulfill their curiosity through exploring their interest freely instead of stressing academic achievement. Under the Chinese cultural emphasis on academic success, it will be a challenge for education practitioners in Hong Kong to foster students' curiosity through general education.

Implication for Research

Results of this study have raised some important implications for research in the field of curiosity. Based on our findings, curiosity measured in this study was suggested to fit in with the concept, theory, as well as measurement of trait curiosity. Previous studies regarded curiosity as a kind of fundamental strengths and personality traits and suggested it should be stable over time and could generally influence a person in different aspects of life (Reiss, 2002; Seligman, 2004). Results from the present study have revealed a strong positive correlation between curiosity measured in time 1 and time 2. This suggested the stability of curiosity over time. And partly because of such reason, simply having general education for one semester might not be able to change curiosity, and hence this might explain why objective learning outcomes would fail to predict curiosity in time 2. Besides, since trait curiosity has consistently correlated with the intended learning outcomes of general education (see Table 17.1), which were related to different skilled areas, therefore, it might suggest trait curiosity can comprehensively affect one's learning across different areas.

Limitations and Recommendations

In spite of the theoretical and practical contributions, the present study raised several issues, which might be further considered in future studies. The first issue is related to the differences of content among general education courses and the feature of general education across universities in Hong Kong. Since different general education courses have different emphases, content of different courses might, thus, vary a lot. As a result, it was difficult to measure the learning outcome of general education in a standardized way. Furthermore, some universities have divided their general education courses into three areas, while others have divided them into two or four; some might have taken grades of students' general education courses into the consideration of major allocation, while others have not. And some might even impose special requirements on students' language ability. These differences may

pose difficulty in comparing the learning outcomes of general education across students from different universities. Therefore, it is not clear to what degree the current findings could generalize to other universities in Hong Kong. In order to consolidate the generalizability of the present findings on the interrelationship between curiosity and learning in general education, future studies are recommended to replicate these findings in other universities.

The second issue is related to the role of education on curiosity. Although the present study has used a longitudinal design to examine the relationship between curiosity and general education, the length of this study was limited to one semester with two measure points only due to some practical concerns. As curiosity was suggested to be a trait and has demonstrated certain stability over time, this study was, therefore, not able to reveal the real effect of education on curiosity. Thus, future study was suggested to cover a long time interval with more time points in examining how would education influence students' trait curiosity.

The final issue is related to the measurement method and dimensionality of curiosity. In this study, the CEI-II developed by Kashdan et al. (2009) was used to measure two dimensions of general curiosity, which were stretching and embracing. However, since the two dimensions of curiosity were highly correlated in the current study and could not be differentiated through factor analysis, the composite score of the CEI-II was used for analysis. Thus, future studies are suggested to examine the relationship between the stretching and embracing dimensions in a Chinese context. Furthermore, scholars have identified several specific types of curiosity, such as epistemic, perceptual, specific, and diversive curiosity (Kashdan et al.). Different types of curiosity might have differential effects on learning in general education. For example, students with high epistemic curiosity are more likely to perform better in school. However, it may not be the case for students who are high in perceptual curiosity. Thus, further research may attempt to clarify the influences of different types of curiosity on learning in general education.

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Chapter 18
Exploring Links Between Time Perspective and Academic Motivation among Filipino Undergraduates

Ruby D. Ilustrisimo

Abstract This study delved into the relationship between temporal perspectives (i.e., past-positive, past-negative, present hedonistic, present-fatalistic, and future time perspective) and motivational types (i.e., intrinsic motivation, extrinsic motivation, and amotivation) among 200 Filipino undergraduates of a private catholic university. Correlation results support Western studies and further shows future time perspective (FTP) and past-positive time perspective as significant predictors of intrinsic motivation toward achievement ($R^2 = .11$, $F(2,197) = 12.28$, $p < .000$), extrinsic motivation introjected ($R^2 = .16$, $F(2,197) = 18.42$, $p < .000$), and extrinsic motivation external ($R^2 = .10$, $F(2,197) = 10.78$, $p < .000$). Findings also show FTP, past-positive time perspective, and present-fatalistic perspectives as predictors of extrinsic motivation identified: $R^2 = .16$, $F(3,196) = 12.71$, $p < .000$. Lastly, significant values of FTP and present-fatalistic time perspective also emerged as predictors of amotivation: $R^2 = .10$, $F(2,197) = 10.81$, $p < .000$.

Anecdotally, it is often a common occurrence that Filipinos employ the possibility of a positive future outcome as a motivating force behind academic endeavors. One usually hears parents tell their children to do well in their studies so that they can lead successful lives in the future. Perhaps, there is an underlying sense of truth to this widely held assumption. After all, a high scholastic attainment guarantees the individual a higher success rate in the contest for the best social and economic positions (Catsambis, 2002; Stevens & Weale, 2004). In an effort to elucidate the relationship of time to motivation, I intend to look into the concept of Zimbardo's time perspective as a possible correlate and predictor of academic motivation among Filipino undergraduates.

Over the years, psychologists have been fascinated with the construct of motivation, which can provide clues of how and why people choose "to be moved to act." In this paper, the self-determination theory (SDT) is used as the explanatory model

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because of its cross-cultural applicability as well as its practical utility (Jang, Reeve, Ryan, & Kim, 2009; Pintrich, 2003). In SDT, there are two basic types of motivation which are hinged on the differing motive or aim that propels the individual to act: *intrinsic motivation* and *extrinsic motivation* (Ryan & Deci, 2000a).

Intrinsic motivation is generally defined as doing an activity because the act is gratifying by itself. This is a naturally occurring tendency where one is inclined to take interest in one activity over another and gain satisfaction and enjoyment just by doing the task of interest (Ryan & Deci, 2000b). Intrinsic motivation is usually characterized by "task involvement, desire to experience adventure and novelty, striving for excellence in one's work, trying to understand something and wishing to improve and goal direction" (Lee, McInerney, Liem, & Ortiga, 2010, p. 265). However, research (Ryan & Deci, 2000b) suggests that although we have intrinsic motivation in abundance, the inclination toward this motivational tendency can only be seen in specific conditions. Optimal conditions are often typified when individuals experience a sense of choice, autonomy, and competence (Deci & Ryan, 2009; Ryan & Deci, 2000a). When optimal conditions are met, positive outcomes like greater achievement, enhancement of behavioral persistence, positive emotions in the classroom, greater enjoyment of academic work, and subjective well-being are evident (Guay, Ratelle, & Chanal, 2008).

On the other hand, extrinsic motivation is defined as doing something because it leads to another outcome either to a reward or to avert punishment. The theory posits that there are four types of extrinsic motivation that has been taken in and incorporated by the self which differs in the degree of autonomy:

Firstly, *external regulation*, which relies on rewards and punishments. It is a type of external motivation when no internalization happened and does not reflect an individual's personal interest or values and highly dependent on external contingencies.

Secondly, *introjected regulation*, a type of external motivation that refers to regulations that are partly internalized rather than fully dependent on external contingencies. This is when the self has not fully integrated the regulation as their own.

Thirdly, *identified regulation*, wherein the individual made the regulation as one's own and has already ascribed a sense of personal significance to the behavior.

Lastly, *integrated regulation*, a type of external motivation which occurs when the regulation has finally been fully integrated to the self. This happens when the new regulations are already in line with one's values and goals (Deci & Ryan, 2009).

Integrated regulation shares the same characteristics with intrinsic motivation and can only be distinguished by its fundamental sources of motivation. Integrated form of extrinsic motivation is rooted on the values that have been internalized, whereas intrinsic motivation is based on one's innate interest and enjoyment (Deci & Ryan, 2009).

Aside from the proposed two distinctions of motivation, Ryan and Deci (2000b) also identified a third type and named it as *amotivation*, which is characterized as a

behavior that lacks the intention of acting and no sense of determination has taken place.

These types of motivation have been perceived as a continuum which differs in the level of internalization and autonomy (Deci & Ryan, 2009). However, it has been elucidated by Ryan and Deci (2000a) that this is not a developmental continuum and does not have to progress from one internalization to the next. There are instances that an individual can adopt a regulation at any point in time dependent on previous experiences and context. Although seen as a continuum of relative autonomy by Ryan and Deci (2000a), a few researchers (i.e., Lepper, Henderlong, Carol, & Judith, 2000) contend that it is not, but rather these two types of motivation can be dichotomized as "two different goals, can coexist, experienced simultaneously and adopted at a similar level" (Lee et al., 2010, p. 265).

Aside from internalization and autonomy, another primary factor that plays a determining role behind human motivation is time (Peetsma & van der Veen, 2011). This is particularly evident in an educational context where goals set are intrinsically dependent on temporal considerations. Time is said to be classified by individuals into three temporal categories of the past, present, and future (Zimbardo, Keough, & Boyd, 1997 as cited in Worrell & Mello, 2007). Time perspective is said to operate in the periphery, a "nonconscious process" where the individual's personal and social experiences are categorized into frames of time that enables the individual to organize, to understand, and to provide meaning to these events (Zimbardo & Boyd, 1999, p. 1271). However, despite being a nonconscious process, individuals develop a certain cognitive bias toward certain temporal categories which influence decision-making and how choices are made (Zimbardo & Boyd, 1999). In an effort to encompass previous studies on time perspective, Zimbardo and Boyd came up with five temporal categories and classified these as follows: *past negative*, demonstrates an individual's propensity to view the past in a negative and unpleasant light; *past positive*, reflects the individual's tendency to look positively at past events and usually experience positive, sentimental, and nostalgic feelings when doing so; *present hedonistic*, refers to the individual's inclination toward present pleasure and enjoyment without taking into consideration future goals and plans; and *present fatalistic*, shows an individual's sense of helplessness in relation to one's future and belief that individual actions do not play a role in its shaping. Lastly, the temporal category of *future orientation* denotes the individual's propensity to plan and set goals in the intention that those goals will be fulfilled.

Literature (e.g., Bilde, Vansteenkiste, & Lens, 2011; De Volder & Lens, 1982; Zimbardo & Boyd, 1999) indicates that among the temporal categories, being future oriented yielded the best study outcomes and has already become synonymous with achievement. Future-oriented students tend to show better organizational skills, are ambitious, and were more willing to sacrifice present thrills to achieve set goals (Zimbardo & Boyd, 1999). Furthermore, when future time perspective (FTP) was linked to SDT, research conducted by Bilde et al. (2011) revealed that FTP has positive associations with introjected regulation ($r = .24$, $p < .001$), identified regulation ($r = .49$, $p < .001$), and intrinsic motivation ($r = .34$, $p < .001$). Students who are future oriented tend to have positive attitudes toward schooling, see value in it, and

are more likely to be persistent when faced with difficulties (Bilde, Vansteenkiste, & Lens, 2011). There are more scientific accounts (e.g., Horstmanshof & Zimitat, 2007; Kauffman & Husman, 2004; Zimbardo & Boyd, 1999) showing how future orientation can enhance academic motivation, performance, and learning but not a lot of accounts on the relationship of other time perspectives with academic motivation. To date, only Bilde et al (2011) have done a study on these other time perspectives but limited the study to only three of them: future time perspective, present hedonism, and present fatalism.

However, King and Gaerlan (2013) delved into the study of other temporal dimensions in relation to another academic-related variable, motivational interference, in the Asian context. To add more to the existing literature, this study looked into the relationship of other temporal categories with the different types of motivation that makes up the self-determination theory in a collectivist context specifically among Filipino undergraduates. Although, Filipino motivation had been extensively studied using different models (Dela Rosa & Bernardo, 2013; King & Gaerlan, 2013; King & Ganotice, 2013; King & McInerney, 2012), this is possibly the first study that looks into Filipino motivation through the lenses of self-determination theory.

Method

Participants

Data was collected from psychology students of a private Catholic university in Cebu City, Philippines. There were 105 (52.5 %) females and 95 (47.5 %) males. The average age was 18.62 with an age of range of 16–22. Most of these students were in their sophomore and junior year of university study. Convenience sampling was used and students were informed that they can choose not to participate in the study.

Instruments

Zimbardo Time Perspective Inventory (ZPTI)   The research made use of the 56-item, five-point Likert scale having response sets ranging from 1 (very untrue) to 5 (very true). The ZPTI yielded an overall reliability of $\alpha = .69$ containing five time perspective subscales: past positive (9 items, e.g., "It gives me pleasure to think about my past"; $\alpha = .51$), past negative (10 items, e.g., "I've made mistakes in the past that I wish I could undo"; $\alpha = .71$), present hedonistic (15 items, e.g., "I try to live my life as fully as possible, one day at a time"; $\alpha = .74$), present fatalistic (9 items, e.g., "My life path is controlled by forces I cannot influence"; $\alpha = .60$), and future (13 items,

e.g., "It upsets me to be late for appointments."; $\alpha = .64$). Although two of the subscales (i.e., past positive and present fatalistic) show low alpha levels, upper limit of validity still falls within acceptable range (past positive has an upper limit of validity of .71 and present fatalistic has an upper limit of validity of .77).

Academic Motivation Scale: College Version (AMS-C28) This study also utilized the 28-item scale constructed by Vallerand et al. (1992) to measure different types of motivation in the context of academic activities. The AMS-C28 is a seven-point scale having response sets ranging from 1 (does not correspond at all) to 7 (corresponds exactly). It also yielded an overall Cronbach alpha of $\alpha = .86$ containing seven subscales: intrinsic motivation to know (4 items, e.g., "Because I experience pleasure and satisfaction while learning new things"; $\alpha = .80$), intrinsic motivation toward accomplishment (4 items, e.g., "For the pleasure, I experience while surpassing myself in my studies"; $\alpha = .82$), intrinsic motivation to experience stimulation (4 items, e.g., "For the intense feelings I experience when I am communicating my ideas to others"; $\alpha = .85$), extrinsic motivation identified (4 items, e.g., "Because eventually it will enable me to enter the job market in a field I like"; $\alpha = .74$), extrinsic motivation introjected (4 items, e.g., "To show myself that I am an intelligent person"; $\alpha = .79$), extrinsic motivation external (4 items, e.g., "Because with only a high school degree I would not find a high-paying job later on"; $\alpha = .75$), and amotivation (4 items, e.g., "Honestly, I don't know; I really feel that I am wasting my time school"; $\alpha = .87$). As one can observed, Vallerand et al. (1992) have subdivided intrinsic motivation into three subscales (i.e., intrinsic motivation to know, intrinsic motivation toward accomplishment, and intrinsic motivation to experience stimulation) and were tested for validity by Fairchild, Horst, Finney, and Barron (2005).

Results

Preliminary Analyses

Background Variables

Independent sample t-tests indicated that male respondents in comparison to the female respondents scored significantly lower on the following time perspectives: *past positive* ($M = 3.54$, SD = .41 for males vs $M = 3.67$, SD = .47 for females) ($t(198) = -1.99$, $p < .05$, Cohen's $d = -.29$), *present hedonistic* ($M = 3.64$, SD = .47 for males vs $M = 3.77$, SD = .44 for females) $t(198) = -2.04$, $p < .05$, Cohen's $d = -.28$), and *future perspective* ($M = 3.27$, SD = .43 for males vs $M = 3.42$, SD = .44 for females) ($t(198) = -2.32$, $p < .03$, Cohen's $d = -.35$).

Furthermore, t-tests also revealed that male respondents also scored significantly lower on the following motivational types: *extrinsic motivation identified* ($M = 5.77$, SD = .91 for males vs $M = 6.04$, SD = .95 for females) ($t(198) = -2.03$, $p < .05$, Cohen's $d = -.29$), *extrinsic motivation introjected* ($M = 5.00$, SD = 1.3 for males vs

M = 5.44, SD = 1.3 for females) (*t*(198) = −2.31, *p* < .03, Cohen's *d* = −.34), and *extrinsic motivation external* (*M* = 5.62, SD = 1.16 for males vs *M* = 6.11, SD = .86 for females) (*t*(198) = −3.38, *p* < .01, Cohen's *d* = −.48).

The only dimension that male respondents showed significantly higher scores than the female respondents is on *amotivation* (*M* = 2.61, SD = 1.53 for males vs *M* = 2.05, SD = 1.39 for females) (*t* (198) = 2.74, *p* < .01, Cohen's *d* = .38).

Intercorrelations

Intercorrelations between all the studied variables are provided in Table 18.1. Firstly, consistent with the other researches (Worrell & Mello, 2007; Zimbardo & Boyd, 1999) on time perspective, results suggest that past negative is positively correlated with present hedonistic and present fatalistic suggesting that although disparate and distinct, these variables are still related. This is also true for past-positive and present hedonistic and past-positive and future perspective (i.e., all showing positive relationships) as well as past-positive and present-fatalistic (i.e., showing a negative relationship which is reminiscent of Zimbardo and Boyd's (1999) findings. Other findings that are akin to that of Zimbardo and Boyd's research (1999) are the following: the positive relationship of present hedonistic and present fatalistic, the negative relationship between present hedonistic and future time perspective, and lastly the negative relationship between present-fatalistic and future time perspective.

Secondly, consistent with the previous studies (Otis, Grouzet, & Pelletier, 2005; Vallerand et al., 1992), correlations between the different types of motivation (i.e., intrinsic motivation, external motivation, and amotivation) show a simplex pattern of correlations. In other words, the closer the motivational components are toward each other in the self-determination continuum, the higher the correlations, and the farther they are from each other, the smaller the correlational values. However, some correlational results (e.g., between intrinsic motivation toward accomplishment and intrinsic motivation to experience stimulation, *r* (200) = .56, *p* < .01; between intrinsic motivation toward accomplishment and extrinsic motivation introjected, *r* (200) = .69, *p* < .01) do not follow a continuum and thus show a deviation from the said pattern. This is akin to the results of Fairchild et al.'s (2005) study and supports the argument of Lepper et al. (2000); Lepper, Corpus, and Iyengar (2005); and Lee et al. (2010) that intrinsic and extrinsic motivation can both exist at the same time and can also be somewhat orthogonal.

Thirdly, of all the temporal categories, the future time perspective seems to have a closer relationship to the self-determination theory yielding significant relationships with all the types of motivation.

Fourthly, past-positive time perspective yielded positive and significant relationships with the following types of motivation: intrinsic motivation toward accomplishment, extrinsic motivation identified, extrinsic motivation introjection, and extrinsic motivation external.

Table 18.1 Means and intercorrelations between measure variables (n=200)

	M	1	2	3	4	5	6	7	8	9	10	11	12
1. Past-positive TP	3.61	1	-.05	.28**	-.15*	.14*	.06	.18*	.07	.24**	.15*	.21**	-.11
2. Past-negative TP	3.55		1	.23**	.40**	-.01	-.02	.01	.01	-.05	.03	-.01	.10
3. Present hedonistic TP	3.71			1	.16*	-.21**	.12	.05	.06	.12	.05	.12	-.02
4. Present-fatalistic TP	2.90				1	-.14*	-.09	-.11	-.07	-.16*	.05	-.02	.28**
5. Future TP	3.35					1	.17*	.30**	.17*	.35**	.39**	.26**	-.20**
6. Intrinsic motivation – to know	5.81						1	.63**	.63**	.45**	.48**	.20**	-.28**
7. Intrinsic motivation – toward accomplishment	5.29							1	.56**	.53**	.69**	.31**	-.31**
8. Intrinsic motivation – to experience stimulation	4.83								1	.43**	.40**	.13	-.22**
9. Extrinsic motivation identified	5.91									1	.49**	.63**	-.43**
10. Extrinsic motivation introjected	5.23										1	.46**	-.24**
11. Extrinsic motivation external regulation	5.88											1	-.22**
12. Amotivation	2.32												1

*p<.05, **p<.01

Lastly, present-fatalistic time perspective yielded a negative and significant correlational value with extrinsic motivation identified and a positive relationship with amotivation (Tables 18.2, 18.3, and 18.4).

Primary Analysis

As shown in the regression analyses of temporal perspectives in relation to types of motivation, the future time perspective plays a significant role in predicting the five types of motivation (i.e., intrinsic motivation toward accomplishment, extrinsic motivation identified, extrinsic motivation introjected, extrinsic motivation external, and amotivation) with β weight levels ranging from .16 to .31. This set of results is consistent with the study of Bilde et al. (2011).

Table 18.2 Summary of simple regression analyses for past-positive and future time perspectives predicting different types of academic motivation ($n = 200$)

	Intrinsic motivation toward accomplishment			Extrinsic motivation introjected			Extrinsic motivation external		
Variable	B	SE B	β	B	SE B	β	B	SE B	β
(Constant)	1.34	.84		.45	.90		2.54	.73	
Future perspective	.77	.18	.28***	1.11	.20***		.56	.16***	
Past-positive perspective	.37	.18	.14*	.29	.19		.41	.16**	
R²	.11			.16			.10		
F	12.28***			18.42***			10.78***		

*p < .05, **p < .01, ***p < .001*

Table 18.3 Summary of simple regression analysis for future, past-positive, and present-fatalistic time perspectives predicting extrinsic motivation identified ($n = 200$)

	Extrinsic motivation identified		
Variable	B	SEB	β
(Constant)	2.78	.80	
Future time perspective	.66	.14	.31***
Past-positive time perspective	.37	.14	.18**
Present-fatalistic time perspective	−.15	.12	−.08
R²	.16		
F	12.71***		

*p < .05, **p < .01, ***p < .001*

Table 18.4 Summary of regression analysis for present-fatalistic and future time perspectives predicting amotivation ($n=200$)

	Amotivation		
Variable	B	SEB	β
(Constant)	2.12	1.02	
Future time perspective	−.54	.23	−.16*
Present-fatalistic time perspective	.69	.19	.25***
R²	.10		
F	10.81***		

*$p<.05$, **$p<.01$, ***$p<.001$

Furthermore, results also suggest that past-positive perspective also has a significant role in predicting some motivational types (i.e., intrinsic motivation toward accomplishment, extrinsic motivation identified, and extrinsic motivation external) albeit to a lesser extent with β weights ranging from .14 to .16. Lastly, present fatalistic was also found to be a significant predictor of amotivation with a β weight of .25, $p<.001$.

Discussion

The present study aimed to look into the relationship of Zimbardo's classification of temporal perspectives with academic motivation using the self-determination theory as a framework among Filipino college students. As expected, the intercorrelations between the five perspectives are in line with the findings of Zimbardo and Boyd (1999) validating the orthogonal dimensions of time perspective despite being sampled in a collectivist milieu.

Furthermore, correlational analysis supports the findings of Fairchild et al. (2005) that indicates that although there is a semblance of a simplex pattern of the self-determination continuum, deviations do occur. Fairchild et al. (2005) asserts that AMS could possibly be riddled with content problems despite its high internal consistency values. Another possibility is that the findings itself actually support the findings of Lepper et al. (2000) and Lepper et al. (2005) that intrinsic and extrinsic motivations are not at the opposite side of the continuum but rather can co-occur and coexist in an academic setting, therefore indicating that the two motivational types are orthogonal.

The study also supports the findings of Bilde et al. (2011) that shows the significant role of future perspective in the prediction of motivational types (i.e., intrinsic motivation toward accomplishment, extrinsic motivation identified, extrinsic motivation introjected, extrinsic motivation external, and amotivation) illustrating and supporting the link between FTP and SDT. This is not surprising since the future is always a consideration whenever we think of fulfilling an activity, whether it is of

short term or of long term in nature. Nuttin (1964 as cited in Lens, Paixao, & Herrera, 2009) reiterated this when he said "the future is our primary motivational space" (p. 63) indicating that future time perspective is universally (whether an individual belongs to an individualist or collectivist culture) a primary consideration in motivational striving. Regression findings also highlighted the significant role of past-positive perspective as a predictor of some motivational types (i.e., intrinsic motivation toward accomplishment, extrinsic motivation identified, and extrinsic motivation external). This is not surprising since past temporal orientation contributes to future goal setting and directs individuals to make meaningful decisions in their lives of past familial experiences (Zimbardo & Boyd, 2009). I deduce that this evinces the strong interrelationship of FTP and motivational strivings and possibly points to the instrumentality component of motivation (Lens et al., 2009). Lastly, regression analysis revealed that present fatalistic plays a substantial role in the presence of amotivation. This is not really surprising since people who have a dominant present-fatalistic orientation believe that they are not in control of their future and eventually exhibit resignation resulting to hopelessness and amotivation (D'Alessio, Guarino, De Pascalis, & Zimbardo, 2003; Zimbardo & Boyd, 1999).

Overall, the findings of this study corroborated with those studies conducted in a Western milieu, thereby reaffirming the universality of the two theories being studied. However, there are a few limitations: Firstly, the study utilized the AMS-C28 (Vallerand et al., 1992) which lacked items that reflect extrinsic motivation integration. Secondly, the study did not look into the factors of autonomy vs external control which are also integral to the self-determination theory. Thirdly, although there are differences in gender in terms of time perspectives and motivational types, this was not delved into because the focus of the paper was more on the interrelationships of the measured variables. Lastly, the relationship of time perspectives to instrumental motivation was not given focus as well as its relationship to academic performance. All of the abovementioned limitations could be interesting directions for further research in the field. After all time perspectives and motivation go hand in hand in the realization of human potential not only in school but also in life.

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Chapter 19
Japanese Students' Motivation Towards English as a Foreign Language

Dexter Da Silva

Abstract This chapter looks at the way that research on Japanese students' motivation towards English as a Foreign Language (EFL) has changed over the past three decades. In the mid-1980s, research was dominated by Gardner's socio-educational model of language motivation (Gardner, Social psychology and second language learning: The role of attitudes and motivation, Edward Arnold, London, 1985, 1988; Gardner, Clement, Smythe & Smythe, 1979; Gardner & Lambert, Attitudes and motivation in second language learning. Newbury House, Rowley, 1972). In the 1990s, dissatisfaction with the weaknesses of this model brought new perspectives and input from educational psychology. My own research results suggested that a few critical aspects of the Japanese context, including the importance of English as an academic subject, and specific aspects of the Japanese learner, were being overlooked.

Most recent research, accepting the importance of the cultural context, has built on aspects of Japanese learners described by local research, such as the importance of a 'willingness to communicate' factor in predicting effort and achievement. It also focuses on students' developing sense of identity, with English as an important aspect of their future selves based on Zoltán Dörnyei's L2 Self System. One interesting result from this recent research is that Japanese students seem to focus more on their 'ought-to self', i.e. aspects of their selves based on others' expectations, as opposed to an 'ideal self', a more independently derived future self.

Various reasons for these research changes are also discussed, including the adoption of general educational psychology theories of motivation, recognition of the importance of the cultural and social context and the increase in research being done by locally based teacher-researchers.

Keywords EFL motivation • Japanese self-concept • Models of motivation • Culturally appropriate models • Japanese higher education

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The aim of this chapter is to sketch the progress of research on Japanese students' motivation towards the study of English as a Foreign Language (EFL) over the past three decades. It starts with a brief look at the current situation, which is followed by a more detailed account of the prior 30 years of research in the area in Japan. I then describe the Japanese sociocultural context, focusing on three aspects I consider to be important to this research – the Japanese self-concept, the Japanese higher education system and its effects on student motivation and the role of English in Japanese society. I then explain the research I undertook to address what I perceived as a gap in the research agenda in this area, outlining the theoretical basis, the research instruments, the process and the results. Finally, I return to the current situation with another look at recent research in this important area.

The Current Situation

Current research on EFL motivation in Japan (e.g. Apple, Da Silva, & Fellner, 2013) is pioneering, leading the world in terms of certain areas of focus, such as demotivation (Ushioda, 2013), and the variety of areas of focus and methodological approaches. It is also being driven by locally based teacher-researchers and by 'insiders' promoting a real cyclical process of theory, research and practice. As such, research in this area has made remarkable progress in the past 25 years. The progress has mainly been in the areas of culturally appropriate models of, and research on, motivation, narrowing the gap between research and practice and expanding the research agenda to include appropriate ideas from general educational psychology.

Research on Motivation to Learn English in Japan

Up until the 1980s, research on foreign language (FL) motivation was dominated by Gardner's Canadian-developed socio-educational model (Gardner, 1985; Gardner & Lambert, 1972), which proposed that FL effort and success were driven by a duality of motivational orientations: *integrative*, which described students who had positive attitudes towards the target language and culture and who were focussed on integrating into the foreign language community, and *instrumental*, which described students who were focussed on learning the language for extrinsic purposes. During this period, there were some research results suggesting its inapplicability to the Japanese context, especially with university and college students. Berwick and Ross (1989) found a lack of either integrative or instrumental orientations among first year students; Fotos' (n.d.) subjects exhibited both instrumental and integrative orientations, though these were not useful as predictors of effort.

There were other problems with the socio-educational model, such as its definition of motivation. Gardner (1985, pp. 10–11) explained why, in his model, the

desire to learn the language without effort, or effort at study without real desire to learn the language, is not really motivation to learn the language. Both of these assumptions were problematic. The former, because the desire to learn a foreign language can be mitigated by a number of factors (such as disliking the teacher) and may lead to no or little effort, but the motivational goals may remain quite strong and eventually produce great effort with the removal of the mitigating factors (e.g. a new teacher). The latter is especially significant from my perspective, as it specifically excludes effort based on reasons such as 'subject requirement' as valid sources of motivation. This is a critical issue in countries like Japan, where foreign language study (almost exclusively English) is an important compulsory subject at junior and senior high school and on university entrance examinations. However, despite these problems, the socio-educational model was still the dominant model with the strongest research results in the area of foreign language motivation.

Calls for an expansion of the research agenda came from researchers in different corners of the world, for example, Dörnyei (1990) in Hungary and Crookes and Schmidt (1991) in Hawaii. There was a clear need for FL motivation research both to broaden its scope by incorporating general educational psychology approaches, as English is such an important academic subject in the Japanese education system, and to use more socioculturally sensitive research and measurement instruments. From the mid-1990s, a few researchers in Japan began to do just this.

In what can be seen as a period of exploration with Japan-based researchers searching for more Japanese-specific theoretical constructs and measurement instruments, there were a few notable results. Nakata (1995) suggested the introduction of a new category of orientation for Japanese students: an *international orientation, which was different to Gardner's integrative orientation in that it does not involve assimilating to a foreign culture, but is associated with a general cosmopolitan outlook and a desire to learn English as an international language.*

Kubo (1997), an educational psychologist approaching English as similar to other school subjects, initiated her research with six theoretical orientations towards EFL study: fulfilment, training, practice, relation, self-esteem and reward. Her factor analyses resulted in two combined factors, which were very different to the socio-educational model: (1) a fulfilment-training orientation, which is similar to a mastery goal orientation, where the focus is to improve and develop your skills, and (2) a self-esteem-reward orientation, which is similar to a performance goal orientation, where the focus of learning is to gain recognition from others. These results suggested the need for researchers to recognise that, in contexts like Japan, English is not only a useful tool for international communication but also an important academic subject.

Sawaki (1997), attempting to re-examine the applicability of Gardner's model to the Japanese context and to explore Japanese-specific factors, found a variety of factors and orientations among university students, which did not fit with the socio-educational model. Using an open-ended, exploratory approach, she found eight factors, some of which were unusual combinations of items: (1) use of English for academic purposes and desire for broadening view of the world, (2) significance of English proficiency for real-life communication, (3) desire to pursue career/academic

goals abroad, (4) interest in the English language, (5) willingness for intercultural communication, (6) interest in pop culture, (7) fulfilment of requirements and interest in target language culture/people and (8) needs and potential benefits of English proficiency in the international community. Some of these factors are related to the integrative and instrumental orientations of the socio-educational model, but some are not, which led her to reflect on 'the effectiveness of the open-ended approach used in the instrument development phase' (Sawaki, 1997, p. 96).

Yashima (2000), following Sawaki's (1997) exploratory approach, found nine orientations, many of which do not fit the Gardner's model. Her orientations were (1) intercultural friendship, (2) travel and passive sociocultural, (3) interest in Anglo/American culture, (4) academic importance of English, (5) instrumental orientation, (6) work in the international community/international mindedness, (7) American/British music, (8) vague sense of necessity and (9) information. Orientation 3 was the most similar to Gardner's integrative orientation, and orientation 5 was equivalent to Gardner's own instrumental one, while orientation 9 was most related to the participants' major area of study. Other orientations were considered either to be subsumed or hidden under Gardner's dichotomy of orientations or completely unrelated. These results highlighted the need for measurement instruments and approaches sensitive to the sociocultural context.

Irie's (2003) analysis of patterns found in many of these studies suggested the need to continue searching for appropriate constructs for this particular context. She concluded that the main constructs used or resulting from the research, Gardner's duality of instrumental and integrative orientations or similar orientations and the other dichotomy of performance and mastery goal orientations or similar constructs have only been able to partially explain Japanese university students' motivation towards the study of EFL. One important issue highlighted by Irie's research, which analysed studies written in both English and Japanese, was the dominant power of English as the international research language and the implications for research and researchers who do not read both English and Japanese. Research written in Japanese was being ignored by researchers, including myself, unable to read Japanese competently. The onus thus fell on Japanese researchers to write in English, if they wanted their work to be recognised, or for other researchers to summarise it in English.

These studies illustrated the limited success of the socio-educational model when applied in Japan or to Japanese students and highlighted the need for theory and research that can reflect both emic and etic features of the Japanese sociocultural context, that is, features that are both specific to the Japanese context and those that share commonalities with other contexts. Specifically, it is important to focus on features that may influence the motivational orientations and intensity of Japanese university students. There is an important strand in the broader educational psychology literature that strongly supports this argument for the need for research to examine differences and emic aspects of the cultural context. A good example article is David Watkins' (2000) on learning and the learner and teaching and the teacher in the Chinese cultural context. Martin Maehr's lifelong work in achievement

motivation is a major part of this literature, as is portrayed by Kaplan, Karabenick and De Groot's (2009) book in his honour. King and McInerney (2014) is another more recent example article, which is directly related to this chapter in terms of its focus on motivation and its argument for the utility of Personal Investment Theory in conducting cross-cultural research in education. The next section will briefly focus on some important emic aspects of the Japanese sociocultural context.

The Japanese Sociocultural Context

Three aspects of the Japanese sociocultural context are directly relevant to Japanese university students' motivation towards EFL: the Japanese self-concept, Japanese higher education and the effects on student motivation and the role of English in Japanese society.

The Japanese Self-Concept

There has been a recent surge in research focusing on self-concept in language learning (e.g. Csizér & Magid, 2014; Mercer & Williams, 2014; Taylor, 2013). However, these tend to focus on etic aspects of self, such as self-efficacy, self-esteem, self-regulation and academic self-concept. In this section, I am referring to emic aspects of the Japanese self-concept. One of the characteristics of Japanese society and its people, which have been proposed as an important factor in its successes, has been its collectivist, as opposed to individualist, nature. The individualism–collectivism dualism has been a popular dimension for study in cross-cultural psychology (e.g. Hofstede, 2000). Countries such as the United States, Australia and Britain are usually considered typical examples of individualistic cultures. In these cultures, the individual's independence is valued over the group's interdependence. The opposite is considered to be the case in countries such as Japan, Korea and Taiwan, which are seen as typical examples of collectivist cultures. In collectivist cultures, cooperation and conformity, rather than individuality and uniqueness, are encouraged.

A related duality, on the individual level, is that of independent and interdependent self-construals (Kitayama & Markus, 1995; Markus & Kitayama, 1991). Markus and Kitayama propose that people in individualistic cultures develop independent self-concepts, while people in collectivistic cultures develop interdependent self-concepts. An independent self-concept is separate from significant others, with a clear boundary between them. Important aspects of the self are those considered to be constant and inherent to the self, such as abilities and individual rights. An interdependent self-concept overlaps with others and has a more flexible boundary. Important aspects of the self occur in these overlapping areas and thus are

always related to relationships and context. These differing self-concepts naturally lead to differences in both the perception of the situation and in different forms of behaviour.

These dualities are general cross-cultural comparisons and do not apply only to Japan. Japanese-specific theoretical constructs that fit with these analyses include *shudan ishiki* (group consciousness; e.g. Davies & Ikeno, 2002) or *shudan seikatsu* (group life; e.g. Kelly, 2001; Peak, 2001), which suppose that Japanese people are primarily group oriented, giving priority to group harmony over the individual, and *omoiyari* (sensitivity to others or empathy; e.g. Lebra, 1976), which drives the forms of behaviour in interpersonal situations.

Shimizu (2001a, 2001b) argues against the utility of the duality of individualism and collectivism for understanding the personal lived experience of individuals, on the grounds that they are not exclusive, but in fact are both present in a continuing conflict. Rosenberger and others (Rosenberger, 1992b) support this inclusive view of the Japanese self, arguing that it is 'multiple, moving and changing' (Rosenberger, 1992a, p. 14).

Hashimoto (2007) sums this up simply by arguing that Japanese 'individuality' is carefully distinguished from Western 'individualism' which is seen as negative self-centredness. She expands this by stating that 'The emphasis in Japan is on the harmony between individuals and the group, rather than individual uniqueness, which might not contribute to group harmony' (p. 28). What this all means is that these aspects of the Japanese self-concept will, in general, cause Japanese people to perceive situations from a more interdependent perspective, which will affect their motivation and their behaviour. If we assume a Western individualistic notion of motivation, we will miss important aspects of students' motivational attitudes and behaviour, especially with regard to important others, such as parents, teachers and peers. In the classroom, teachers should not expect motivation to be exhibited in typical Western-type behaviour of asking questions and readily answering the teacher's questions.

Japanese Higher Education and the Lack of Student Motivation

According to the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT), the number of universities in Japan has steadily increased from 507 in 1990 to 783 in 2012 (MEXT, 2014a). Some of this increase has been to cater for increasing enrolment rates as higher education progressed from mass access (about 50 % enrolment rate for all forms of higher education, including vocational schools and junior colleges, in 1990) to universal access (about 78 % in 2012 (Amano, 2014)). However, this increase has happened simultaneously with a steady decrease in the number of 18-year-olds from around 2 million in 1990 to around 1.2 million in 2012 (MEXT, 2014b). Thus, overall competition intensity to enter university has decreased during the past two decades.

These universities are very diverse, in terms of size, status, range of faculties and quality. About 25 % are public and national universities, including many of the most prestigious, such as the University of Tokyo and Kyoto University. Of the remaining 75 % private universities, some are prestigious, such as the well-known Keio and Waseda Universities, while many are hardly known even within Japan. Competition to enter the top public and private universities is still fierce, but recently many departments in the middle- and lower-ranked universities do not meet their target intakes, and so competition and the level of students' academic achievement and ability have been lowered (Amano, 2014).

Though it has been changing somewhat in recent years, large corporations and the public bureaucracy still employ and promote people based on the rank of the university attended, rather than the discipline studied, grades attained or other criteria. This also helps to intensify the competition to enter prestigious universities.

In the 1980s and 1990s, it was commonly considered by students, their parents, teachers and the general public that Japanese university students lacked motivation to study, compared to their counterparts in other countries. University was seen as a kind of 'moratorium' (Sugimoto, 1997). This was explained as the aftermath of the university entrance 'examination hell', from which students needed a rest. In addition, since the rank of the university rather than the grades achieved in their university study played the major role in their future, they saw very little value in doing well at university. McVeigh (2002), agreeing with this analysis, damned the majority of higher education in Japan, referring to its supposedly high quality, in his title, as 'myth'. The importance of McVeigh's analysis is that it contextualised this reported lack of student motivation by focusing on problems within the education system which derived from its specific sociocultural context.

One of the problems with these analyses though is that they didn't consider the full complexity of the concept of motivation. They focused on certain behaviours, but not on the underlying cognitive or emotional processes that produce or do not produce the behaviours. Towards the end of the 1990s, as we approached the new millennium, researchers, including myself, started to address this problem by using new models of motivation, seeking to understand students' experiences and perceptions within their sociocultural context. English plays a very important part in this context, especially within the Japanese education system, so the next section will look at the role of English in Japan.

English in Japanese Society

Japan is often described as homogeneous, monocultural and monolingual. Though this may be argued from a relative perspective, compared with other countries with populations of over 100 million, from an absolute perspective, it is a myth. Publications on multiethnic, multicultural and multilingual Japan in the past 20 years (Denoon, Hudson, McCormack, & Morris-Suzuki, 2001; Goebel Noguchi & Fotos, 2001; Lie, 2001; Maher & Yashiro, 1995) clearly support the view that there

is a diversity of cultures and languages in Japan, from the aboriginal Ainu in the north to Okinawans in the south. The increasing internationalisation of Japan, especially through the increase in international marriages and children educated abroad, has also enhanced this diversity.

This increasing internationalisation and language diversity is often regarded as Americanisation or Westernisation and is dominated by the English language. According to Kachru's (1985) conception of three concentric circles of English, Japan falls within the expanding circle, which encompasses countries where English is widely studied, but does not play a major role in society at large. The inner circle of countries is those where English is the native or dominant language: the United States, Australia, Britain, Canada and New Zealand. The outer circle comprises those countries where English has a long history of importance in various areas of society, such as education, government and popular culture, for example, India, Nigeria, Pakistan and Singapore. Examples of other Asian countries in the expanding circle are Indonesia, China, South Korea and Nepal.

While this categorisation is not foolproof, it does capture the situation of English in Japan. The prime importance of English for university entrance, and the effect this has on the English education system, is well documented (Ingulsrud, 1994; LoCastro, 1996), as is also the history of English teaching in Japan (Ike, 1995; Koike & Tanaka, 1995; Tanaka & Tanaka, 1995). On the other hand, perhaps it does not capture the attractive power of English, as the main international language, to a young person with vague dreams of becoming a cosmopolitan user of English. It also doesn't fully explain the ambivalence many Japanese feel about English (English: Bane or blessing?, 2000; Nakatsu, 2000). English is seen as being very important and, at the same time, very difficult. This is epitomised by the very common comment given by young people of *nigate* (苦手 – literally 'suffering hand') when asked about their English. It accepts that they're not good at English but acknowledges its importance and their past effort. It also results in continuing debates over how early to introduce English in the school curriculum (Torikai, 2000) and continuous reform of English language education (Clavel, 2014; Enhanced English education sought in Japanese elementary schools, 2013). Ryan (2009) and Ushioda (2013) both refer to this as a permanent sense of crisis surrounding English education in Japan. We can perhaps see this continuing sense of crisis and ambivalence as a result of Japan, aiming to maintain its cultural independence, successfully 'removing English …. from the core identity of Japan without excluding the language completely from Japanese society' Hashimoto, 2007, p. 27).

These three aspects of the Japanese sociocultural context, the Japanese self-concept, Japanese higher education and the supposed lack of student motivation and the importance of English in the education system, but lack of use and ambivalence about it in wider society, are all directly relevant to student motivation, but were largely ignored by the research agenda until the early 1990s. It perhaps was a form of the streetlight effect – searching for something where the light is better (the existing research instruments) and not searching enough where you actually lost it (the reality of the situation).

As mentioned above, some researchers in Japan (Kubo, 1997; Nakata, 1995; Sawaki, 1997) started to use more open-ended, exploratory research techniques in order to obtain a clearer, more accurate picture of the situation. These research results pointed to etic aspects of EFL motivation in the Japanese context, which previous studies were blind to. The current author contributed to this expansion of the research agenda by using a theoretical model and research instruments based on it that were sensitive to the sociocultural context of Japan, especially the three aspects described above.

Maehr's Personal Investment Model

Maehr's personal investment (PI) model (Maehr, 1984; Maehr & Braskamp, 1986) was used as the theoretical basis for the research project I undertook to investigate university students' academic motivation towards the study of EFL specifically and towards university study in general. Similar to other research at the time, one of the main aims was to explore emic aspects of student motivation. Other aims were to develop and validate measurement instruments based on PI theory, to discover the factor structure of students' motivation, to compare the resulting factors for EFL study and general university study and to assess whether these resulting factors were predictors of achievement, as measured by class grades and Test of English as a Foreign Language (TOEFL) scores.

PI is a comprehensive, multiple-goal model of motivation which theorises that student behaviours are the result of the meaning they make of their context. This personal meaning derives from the three core concepts of (1) their personal incentives or goals, (2) their sense of self and (3) what they perceive as action possibilities. These three concepts are influenced by five contributing factors: (a) information, especially related to action possibilities, for example, information about possible vocations; (b) the situation, for example, the teaching-learning situation, including social expectations and aspects of the situation related to instruction and task design; (c) personal experiences, especially important ones related to school, family background and perhaps trips abroad; (d) age or life stage, which in the research project was the post-adolescent stage of emerging adulthood; and (e) the sociocultural context – Japan and Japanese universities.

In his theoretical model, Maehr stressed the central role of meaning in determining personal investment. This meaning of the situation to the person is a combination and interaction of the three core concepts mentioned above: personal incentives or goals, sense of self and action possibilities. Thus, the meaning of being a university student and studying EFL to a Japanese university student derives from a combination of her goals, her sense of self and her perceived possibilities. These would've been, and continue to be, influenced by the five contributing factors, such as information she has about her possible future, past successes and failures, the university context itself and her current stage of development.

This model was used as the theoretical base in order to identify and understand some of the important motivational and sense-of-self characteristics of female Japanese university students, who are at the start of a very exploratory stage of their lives. It was considered ideal for this project for a variety of reasons, related to its focus on multiple goals. Firstly, it is sensitive to the emic aspects of different cultures. Secondly, by focusing on what motivates people rather than whether they are motivated or not towards a particular activity or goal, it has a more positive and insightful viewpoint. Finally, the outcomes of personal investment are also multiple, including achievement, personal growth and life satisfaction (Maehr & Braskamp, 1986).

Measurement Instruments

The measurement instruments used were two forms of an Inventory of University Motivation (IUM) – the IUM towards the study of English as a Foreign Language (IUM-Eng) and the IUM towards university study in general (IUM-Gen) (Da Silva, 2006). As mentioned above, one of the aims of the research was to compare and contrast EFL study motivation with general university study motivation. EFL motivation is usually seen as being qualitatively different from general academic motivation, but there has been little research directly comparing them.

The two instruments were adapted from McInerney's Inventory of School Motivation (ISM) (McInerney, Roche, McInerney, & Marsh, 1997; McInerney & Sinclair, 1991; McInerney & Swisher, 1995), which is based on Maehr's theory of personal investment (Maehr, 1984; Maehr & Braskamp, 1986). It was adapted for use with Japanese university students, and for validity reasons, items were translated into Japanese. The translation of the instrument conformed in several ways to guidelines recommended by Garcia Duncan (2002) including using (1) a translation team, (2) both forward and backward translation and (3) simplified vocabulary and syntax.

Each of the two instruments included items to measure four types of personal incentives or goals: (1) task (or mastery) goals, (2) ego (or performance) goals focusing on power and competition, (3) social goals (defined as 'perceived social purposes for academic achievement' (Urdan & Maehr, 1995, p. 213)) and (4) extrinsic rewards.

Results

The results of this project were various and important. A few are explained here. First, the measurement instrument and theoretical model were validated as appropriate, and indeed as promising, for use with university students within this sociocultural context (Da Silva & McInerney, 2002).

Second, the idea of university students being completely unmotivated to study was challenged (Da Silva & McInerney, 2004a, 2005, 2008). The results suggested that students' intrinsic motivation towards both university study in general and towards EFL was not being recognised. The results together suggested that teachers and universities themselves may be as responsible for the lack of motivational behaviour as the students, perhaps focusing too much on grades or other extrinsic rewards, and not enough on students' intrinsic motivation, or on providing enough feedback for students. The results also pointed to ways in which this motivation could be nurtured, through focusing on social goals, which have often been seen as detracting from motivated learning. However, the social goals in this theoretical and research model are ones that support learning, suggesting that group work and collaboration may be important for these students.

Another important result, seemingly obvious given the sociocultural context but even now still underestimated, was the relatively stronger perception of English as an academic subject as compared to its perception as a language for communication. The two resulting scales of the IUM, using exploratory principal components analysis, were almost identical and yielded very similar results, suggesting that the structure of motivation for EFL is not that different for the motivational structure for studying in general (Da Silva & McInerney, 2006).

A final example of one of the results on the individual factors, a factor we named 'competition', an ego or performance goal, emerged as one of the strongest predictors of success on the Test of English as a Foreign Language (TOEFL) (Da Silva & McInerney, 2004b). This result partially explained an issue which had confounded teachers, that of a lack of correlation between students' class grades and their scores on TOEFL, and reinforced the distinction between English as an academic subject and as a language for international communication. It also pointed to the importance of competition, a factor related to the so-called performance goals, in some situations and contexts. It is interesting to note that research studies in Western contexts have also found that performance goals more strongly predicted achievement outcomes compared to mastery goals (e.g. Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010).

Recent Research

While further research using PI theory on EFL motivation or general academic motivation has not eventuated, as mentioned in the introduction, current research on EFL motivation in Japan has progressed considerably, building on the advances made in theory and research in foreign language motivation around the world, but especially those that are appropriate for the Japanese context. It has incorporated ideas from educational psychology and self-concept research, as well as other areas of psychology. In a recent volume (Apple et al., 2013), the editors, recognising the importance of the sociocultural context and the situated approach to education, focused solely on Japan, in collecting studies using a variety of theoretical

approaches and research methodologies, in a number of different educational contexts. The contents of this volume reveal some recent areas of focus in EFL motivation research, such as demotivation (Kikuchi, 2013) and willingness to communicate (WTC) (Yashima, 2013), and some new influences, such as positive psychology (Lake, 2013) and dynamic systems theory (Nitta, 2013). These perspectives and the researchers themselves all consider motivation as dynamic, complex, changing and very much dependent on the sociocultural context. The most dominant construct in the volume is that of the L2 Self.

The L2 Motivational Self System was first introduced by Dörnyei (2005) in an attempt to reframe Gardner's integrative orientation, which despite its problematic points mentioned above does merit attention. Dörnyei uses the concept of 'possible selves' from the seminal work of Markus and Nurius (1986) in personality or self psychology. He incorporated two aspects of possible selves, the ideal self and the ought-to self into his L2 Motivational System. The ideal L2 Self refers to the L2 aspects of the person one would like to become. The ought-to L2 Self refers to the L2 aspects of the person one believes one should become. This self system has been enthusiastically adopted by many L2 motivation researchers, as the examples in the recent edited volume demonstrate (Apple, Falout, & Hill, 2013; Irie & Brewster, 2013; Lake, 2013; Munezane, 2013; Taguchi, 2013; Yashima, 2013). One important reason for its wide adoption has been its sensitivity to the sociocultural context; indeed by nature, it is sensitive to each individual's specific context. Some researchers (e.g. Apple et al., 2013) have found that in this sociocultural context – post-tsunami Japan – the ought-to self may play a more significant role than the ideal self, a possible reflection of the interdependent sense of self described above.

In closing, we can conclude that the progress that research in EFL motivation has made in the past few decades has been one of searching for culturally appropriate constructs and models of motivation. Many of these have been adopted from outside the EFL-specific literature, recognising the important roles that educational and psychological theories and research play in EFL teaching and learning. Japanese and Japan-based teacher-researchers have contributed significantly to this progress and will continue to do so.

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Part VI
Learning Goals

Chapter 20
Reciprocal Relations Between Chinese Students' Beliefs of Competence, Effort Goal, and Academic Achievement

Alexander Seeshing Yeung, Feifei Han, and Frances Lai Mui Lee

Abstract Research has shown significant impacts of academic self-concept and motivation on students' academic outcomes. However, a majority of these studies have used samples in Western society, with Eastern students being mostly neglected. With increasing attention received by Asian samples, cross-cultural research in school psychology has found some differences between Western and Asian students, particularly in competence (i.e., academic self-concept) and effort beliefs. Still missing in the literature are the interrelations among competence and effort beliefs and academic achievement and how competence and effort beliefs may similarly or differentially influence Asian students' achievement. In the study reported here, longitudinal data were collected from a secondary school in Southern China ($N = 628$) at three time points (7th to 9th grades). Confirmatory factor analysis and structural equation modeling were conducted to test longitudinal interrelations (T1, T2, T3) between competence and effort beliefs on the one hand and to examine the strength of competence and effort beliefs in predicting subsequent academic achievement on the other. The results showed that both competence and effort beliefs were quite stable across 3 years. However, differential relations between the two belief constructs and academic achievement were observed across the years: T1 competence but not T1 effort positively predicted T2 achievement, whereas T2 effort but not T2 competence positively predicted T3 achievement. There seemed to be a developmental pattern suggesting a shift from a strong association of achievement with competence beliefs to a strong association with effort beliefs as Chinese students matured.

Keywords Competence • Effort • Academic achievement • Chinese secondary school students • Reciprocal effects model

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Students' self-concept and motivation are widely acknowledged as two important psychological constructs, which have prominent influences on students' academic performance (Craven, Marsh, & Burnett, 2003; Yeung, 2011). The existing research on academic self-concept and motivation is predominantly from Western societies, with Eastern students being largely neglected. As researchers on the psychology of Asian students have noted that culture contributes significantly to the shaping of students' beliefs (Kember & Watkins, 2010, 2012; Watkins, 2000; Watkins & Hattie, 2012; Wu & Watkins, 2005; Yeung & Yeung, 2008), a neglect of Asian samples is likely to limit the generalizability of Western theories. While Western cultures with an emphasis on individualism tend to value people's innate ability, countries under the influence of Confucianism appreciate effort in education (Yeung & Yeung, 2008). These cultural differences are likely to produce varying relational patterns in terms of beliefs toward ability and effort with academic achievement. The current study examined the reciprocal relations of ability and effort beliefs with achievement among Chinese students in grades 7–9. In particular, whereas Western studies often found reciprocal effects between ability beliefs and academic achievement (Craven & Yeung, 2008; Marsh, Byrne, & Yeung, 1999), the reciprocal relations between effort and achievement may be similarly salient for Asian students such as the Chinese sample in this study.

Self-Concepts and Impacts

Academic self-concept, defined as students' self-perception of global and/or specific academic domain capabilities, is a significant contributing factor to various desirable educational outcomes (Craven et al., 2003). A large number of studies have consistently identified that holding a positive academic self-concept can enhance both learning behavior and outcomes including achievement scores (e.g., Chapman & Tunmer, 1997; Marsh & Yeung, 1997). Based on a twofold multidimensional conceptualization of academic self-concepts (Arens et al., 2011), academic self-concepts can be studied as domain-specific constructs (Craven & Yeung, 2008), or from a hierarchical and global perspective (Alsaker & Olweus, 2002), and may be differentiated into cognitive (how good I am) and affective components (how much I like it). However, when studying self-concepts, it is important to match self-concepts and other variables at the same level of the self-concept hierarchy. This is known as the *specificity matching principle* (Swann, Chang-Schneider, & Larsen McClarty, 2007). That is, if the focus is domain specific (e.g., math), we may expect that math achievement and math self-concept would be mutually influencing each other (Craven & Yeung, 2008). Nevertheless, when the focus is on a general perception of the academic self, then the outcome to be considered should be of a general or global academic nature. As the current study focuses on a general developmental pattern of academic self-concept, the variables considered here are all of a general academic sense.

The competence component of general academic self-concept is about how good students perceive themselves in academic work, whereas the affect component is about the extent to which they like schoolwork. This distinction between competence and affect is important and meaningful, as the two components may impact short- and long-term educational outcomes differently (Yeung, 2011; Yeung & McInerney, 2005). While a sense of competence about one's ability in academic endeavor is likely to be associated with short-term and immediate performance outcomes such as test results, liking of and enjoyment in school activities may be linked to more long-term benefits such as academic retention and aspirations (Yeung, 2011).

The impact of students' sense of competence on achievement has been demonstrated in many studies as a strong factor contributing to school performance and achievement in a variety of academic disciplines, such as math and languages (e.g., Arens et al., 2011). The reciprocal, dynamic, and mutually reinforcing relations between competence beliefs and achievement have been demonstrated in reciprocal effects models (REM) (e.g., Marsh et al., 1999; Marsh & Craven, 2006). Nevertheless, despite the accumulated evidence of the REM, the majority of studies have been carried out in Western countries. To obtain a fuller picture of the dynamic relations between competence beliefs and achievement with Eastern samples, the present study attempts to fill the gap by investigating a sample of Chinese middle school students.

Based on a differential prediction hypothesis that proposes different predictors for short-term and long-term outcomes (Yeung, Craven, & Kaur, 2012), this study considered the competence component as a prominent predictor of students' end-of-year total achievement score as a short-term outcome. In contrast, effort which is often found to be a characteristic of Asian students influenced by Confucianism (Yeung & Yeung, 2008) may be considered as a significant driver of sustained engagement and long-term educational gains.

Effort Goal and Its Impact

Advances in school motivation research have shifted focus from traditional dichotomous distinction between intrinsic and extrinsic motivation to achievement goal theory to examine students' various goal orientations (King, Ganotice, & Watkins, 2012; Yeung, 2011). Achievement goal theory is established in order to understand "students' adaptive and maladaptive responses to achievement challenges" (Senko, Hulleman, & Harackiewicz, 2011, p. 27). Goals are referred to as cognitive representations of students' purposes in different achievement scenarios (Pintrich, Marx, & Boyle, 1993). Different goals brought by students to the classroom will affect their cognition, behaviors, and affect (King & Watkins, 2012; McInerney, 1995), and the goals set by students can provide them with meaningful learning purposes and help them understand learning situations (Seifert, 2004). Hence, goal orientations are not

only associated with learning outcomes but also learning processes (Linnenbrink & Pintrich, 2002).

Numerous studies have demonstrated that achievement goals have salient effects on students' learning strategies, task involvement, academic engagement, reaction to success and failure, and academic achievement (Hulleman Schrager, Bodmann, & Harackiewicz, 2010). In achievement goal theory, two primary goals were the focus of investigation, namely, mastery and performance goals (Wolters, 2004). Students who hold a mastery goal orientation focus primarily on acquiring and developing their capabilities, whereas students pursuing performance goal orientations predominantly focus on demonstrating and comparing their competence to others and becoming a winner. Mastery orientations are generally considered as being more facilitative because students holding mastery goals are willing to invest their effort in learning so as to improve competence and build up knowledge (e.g., Gehlbach, 2006; Gutman, 2006). Students with mastery goals have been shown to be adaptive in learning, persistent with challenging tasks, and perseverant in maintaining effort (e.g., Robins & Pals, 2002; Ryan & Pintrich, 1998).

In recent developments of goal theory, based on personal investment theory (Maehr & McInerney, 2004; McInereny, Maehr, & Dowson, 2004), McInerney and his colleagues have proposed that personal goals may be conceptualized in terms of four aspects, each of which is also comprised of two subsets (e.g., Yeung & McInerney, 2005). The four aspects are mastery (including task involvement and effort), performance (also known as ego, including competition and power), social (including affiliation and social concern), and extrinsic (including praise and token rewards). Among these goals, we chose to focus on effort goal, as emphasis on effort is particularly relevant to Chinese students under the influence of traditional Chinese culture and values.

Past research has shown that students who are high in effort goal are generally found to work harder than their peers, resulting in superior performance, which interestingly reflects the profile of many high achievers in Asian education settings (Yeung & Yeung, 2008). For a long time, strengthening and fostering students' effort goal has become a major aim for educators to strive for in order to obtain desirable educational outcomes. This is because effort goal is internal and controllable and is therefore worth promoting as an intervention focus (Dweck, 2006; Yeung, 2011).

Emphasis on Effort in China

Despite the general consensus that maintaining effort among students at all ages is conducive to learning in different educational stages, educational theories under the influence of diverse cultures seem to emphasize effort to a different degree (Yeung & Yeung, 2008). While Western tradition merits innate ability, Chinese culture

deeply rooted in Confucius' teaching has long been emphasizing effort and diligence. In a collection of sayings attributed to Confucius – *The Analects of Confucius*, "God helps the diligent," can best describe Confucius' philosophical attitudes toward effort (Yao, 2000).

Since then, numerous Chinese sayings and poems describing the essence of effort have been composed. For instance, Chinese teachers often quote two famous sayings, "If one does not exert oneself in youth, one will regret in old age" (206 BC-220 AD) and "One excels through diligence, not recreation" (772 AD-846 AD), to encourage their students to invest effort in study (also see Yeung & Yeung, 2008). Another expression "Diligence can compensate for dumbness" (768 AD–842 AD) vividly depicts how Chinese people perceive the relation between one's competence and effort, that is, competence is closely linked to the amount of effort an individual puts in the task. As summarized by Salili and Hau (1994), "for Chinese students, people working hard have higher ability and those who have high ability must have worked hard" (p. 233).

Due to the highlights of effort among Chinese scholars and students throughout all levels of education, it is meaningful to examine the contribution of effort together with competence beliefs to academic achievement among Chinese students. We may expect the relational pattern between Chinese students' effort and competence associated with achievement to be different from that observed in Western countries.

The Present Study

The present study aims to (1) investigate the developmental pattern of Chinese students' sense of competence and effort goal and (2) examine the longitudinal relations of these beliefs to academic achievement in three consecutive years from grade 7 to grade 9. Two research questions are addressed:

RQ1: What is the developmental pattern of competence and effort among Chinese secondary students?
RQ2: What are the longitudinal relations among competence, effort, and achievement?

Regarding RQ1, although past studies demonstrated that both self-concept and motivation tend to deteriorate as students mature (Anderman, Machr, & Midgley, 1999; Yeung, 2011), most of the evidence came from Western students. It is uncertain whether Chinese students would experience the same downward trend. Concerning RQ2, we may expect reciprocal relations, and we may also anticipate that Chinese students' effort goal also has salient prediction of academic achievement, as Chinese cultural and educational values place a much more emphasis on an individual's effort than competence (Yeung & Yeung, 2008).

Method

Participants

The participants were 628 secondary school students (300 girls and 328 boys) from 12 classes in the same secondary school in China. The data were collected in three time waves when the students were at years 7, 8, and 9, respectively. On average, the participants' ages ranged between 13 and 15 years over time. Consent to voluntary participation was obtained from the students and their parents before data collection.

Instruments and Procedure

Apart from demographic information, such as sex and class, the students responded to the same questionnaire items on self-concept of competence and effort goal in each of 3 years. The instrument was translated into Chinese. The items were on a 5-point scale, with 1 representing strongly disagree and 5 being strongly agree. At the end of each year, students' academic results were collected.

Competence Self-concept of competence was measured using a 4-item scale of the short version of Self-Description Questionnaire (Marsh, Ellis, Parada, Richards, & Heubeck, 2005). It measured students' perceptions of their capabilities in general schoolwork. An example is "I learn things quickly in most school subjects." The reliability of the scale was .79, .74, and .83, for the three waves, respectively.

Effort Goal Similar to competence, four items were used to measure effort goal, taken from the Inventory of School Motivation (McInerney, Yeung, & McInerney, 2001). A sample item is "I work hard to try to understand something new at school." The reliability was .74, .83, and .86, respectively, for the three time points.

Academic Achievement Academic achievement was an aggregate score of school subjects obtained from the students' end-of-year examination results. The maximum scores varied across the 3-year period (i.e., the total scores were 100, 120, and 150, respectively); therefore, all the scores were converted into 100 points for the ease of interpretation.

Data Analysis

There were less than 1.00 % of missing values in the present dataset. However, we used full information maximum likelihood (FIML) estimation for the replacement of these missing values, which is considered as one of the best methods for handling missing data (Arbuckle, 1996; Enders & Bandalos, 2001).

The data analysis was conducted in three steps. The first step was a preliminary analysis focusing on the reliability of each a priori scale. Second, using confirmatory factor analysis (CFA) with Mplus 6, the internal structure of the a priori scales was tested. To delineate varying reciprocal relations of ability and effort beliefs with achievement, we attempted to ensure that such beliefs were distinct from each other. Hence, two sets of CFA models were tested. The CFAs with all the items of competence and effort representing a single factor for each year (one-factor model) were compared to the CFAs with two separate scales for each year (two-factor model). By establishing the two-factor model, we would be able to test the reciprocal relations of each factor with academic achievement. The general procedures for conducting CFA were followed (e.g., Jöreskog & Sörbom, 2005). The Tucker-Lewis Index (TLI, Tucker & Lewis, 1973), the Comparative Fit Index (CFI, Bentler, 1990), and the root mean square error of approximation (RMSEA, Browne & Cudeck, 1993) were used as primary goodness-of-fit statistics. It is generally accepted that values of TLI and CFI greater than .90 represent an acceptable fit to the data (Bentler, 1990; Hu & Bentler, 1999) and a value of .06 of the RMSEA is indicative of good fit between the hypothesized model and the observed data (Browne & Cudeck, 1993).

Based on the CFA, a REM was constructed and tested with the two established scales (competence and effort) and achievement (final exam score). In interpreting the REM, we emphasize the time sequence. That is, time 2 (T2) variables were predicted by each of the three variables at time 1 (T1), and the three variables at time 3 (T3) were predicted by each of the variables at both T1 and T2. The latent constructs measured at the same time wave were correlated in the REM. In all models with longitudinal data, based on recommendations of the researchers in obtaining accurate estimates of the relations among constructs (Marsh & Yeung, 1997), correlated uniquenesses were included for identical items that were used repeatedly across time waves.

Results

Preliminary Analysis

Descriptive statistics are presented in Table 20.1. The reliability of each scale in 3 years and the alpha values were reasonably good, providing preliminary support for the two latent constructs. The means of the two scales were quite stable, suggesting that the students' competence and effort did not decrease. Three separate repeated measures ANOVAs were performed, and the results revealed that the mean scores of effort were higher than those of self-concept in all 3 years (time 1, $F(1, 626) = 1035.71$, $p < .01$; time 2, $F(1, 626) = 1041.93$, $p < .01$; time 3, $F(1, 626) = 860.32$, $p < .01$). Hence, consistent over time, the students had higher positive perceptions of effort than competence.

Internal Structure of Competence Beliefs and Effort Goal

Table 20.1 shows the fit statistics of one-factor and two-factor models. It shows that the eight items of competence and effort did not fit one-factor models (model 1A without correlated uniqueness, χ^2 (249)=1835.73.40, TLI=.76, CFI=.74, RMSEA=.10; model 1B with correlated uniquenesses for parallel items across time points, χ^2 (225)=1151.93, TLI=.86, CFI=.83, RMSEA=.08). In contrast, the two-factor model with competence and effort as two separate latent constructs had a reasonable fit to the data (model 2A, χ^2 (237)=778.37.40, TLI=.92, CFI=.91, RMSEA=.06). When the two-factor model had the error terms and correlated error items included, an improved fit was obtained (model 2B, χ^2 (213)=401.35, TLI=.97, CFI=.96, RMSEA=.04). Subsequent models had these correlated uniquenesses included.

Relations with Academic Achievement

A CFA with 3 years' academic achievement scores was constructed, and the model (model 3) produced good fit to the data (χ^2 (267)=476.45, TLI=.97, CFI=.96, RMSEA=.04). To test the longitudinal relationship between competence and effort in relation to achievement, a full REM was constructed. As the number of parameter was the same as the CFA, the full REM produced the same fit of the data as model 3 (χ^2 (213)=401.35, TLI=.97, CFI=.96, RMSEA=.04) (Table 20.2). The factor loadings of the REM are presented in Table 20.3, which shows that all the loadings were above .43.

Table 20.4 displays the factor correlations, which show that the competence and effort scales were positively associated with each other across 3 years, ranging from .31 to .52. The correlations of competence and effort with achievement were all significant and positive in all three waves. However, in general, the correlations between competence and achievement were stronger (rs=.30 to .43) than those between effort and achievement (rs=.11 to .21). The correlations among the achievement scores at three time points were positive and strong (.69 to .84) (Table 20.4).

Table 20.1 Descriptive statistics

Variables	Mean	SD	Alpha
T1 competence	3.25	0.62	.79
T2 competence	3.28	0.68	.74
T3 competence	3.29	0.69	.83
T1 effort	4.09	0.61	.74
T2 effort	4.13	0.59	.83
T3 effort	4.06	0.63	.86
T1 achievement	70.85 %		
T2 achievement	72.96 %		
T3 achievement	76.71 %		

Table 20.2 Goodness of fit

Model	Model description	χ^2	df	TLI	CFI	RMSEA
1A	One-factor CFA model conflating competence and effort (no correlated uniquenesses)	1835.73	249	.76	.74	.10
1B	One-factor CFA model conflating competence and effort (with correlated uniquenesses)	1151.93	225	.86	.83	.08
2A	Two-factor CFA model separating competence and effort (no correlated uniquenesses)	778.37	237	.92	.91	.06
2B	Two-factor CFA model separating competence and effort (with correlated uniquenesses)	401.35	213	.97	.96	.04
3	Model 2B integrating achievements	476.45	267	.97	.96	.04
4	REM	401.35	213	.97	.96	.04

Note: $N=628$, items$=24$ for models 1 and 2; 33 for models 3 and 4

Table 20.3 Factor loadings of model 4

Factor loadings	Comp1	Comp2	Comp3	Eff1	Eff2	Eff3
Comp1	.74**	.83**	.83**			
Comp2	.81**	.89**	.89**			
Comp3	.49**	.65**	.68**			
Comp4	.55**	.61**	.69**			
Eff1				.65**	.63**	.73**
Eff2				.67**	.79**	.86**
Eff3				.58**	.69**	.80**
Eff4				.44**	.54**	.61**

*Note: $N=628$, **$p<.01$*

Table 20.4 Factor correlations of model 4

|	Comp1	Comp2	Comp3	Eff1	Eff2	Eff3	Ach1	Ach2
Comp2	.56**							
Comp3	.48**	.63**						
Eff1	.42**	.31**	.28**					
Eff2	.31**	.47**	.39**	.47**				
Eff3	.31**	.36**	.52**	.44**	.58**			
Ach1	.30**	.33**	.34**	.12**	.11**	.17**		
Ach2	.35**	.43**	.39**	.13**	.19**	.21**	.76**	
Ach3	.32**	.39**	.38**	.13**	.17**	.21**	.69**	.84**

REM

Figure 20.1 presents the paths of the REM. It can be seen that prior competence significantly and positively predicted subsequent competence (T1 to T2 competence, $\beta=.53$, $p<.01$; T2 to T3 competence, $\beta=.43$, $p<.01$), whereas prior effort significantly and positively predicted subsequent effort (T1 to T2 effort, $\beta=.50$, $p<.01$; T2 to T3 effort, $\beta=.48$, $p<.01$). Similarly, prior achievement significantly predicted subsequent achievement scores. The path from T2 to T3 achievement was stronger than the one from T1 to T2 (T1 to T2 achievement, $\beta=.49$, $p<.01$; T2 to T3 achievement, $\beta=.74$, $p<.01$). Although the factor correlations between competence, effort, and achievement were all significant, prior competence and effort did not always have additional effect on subsequent achievement after controlling for all other prior variables. In particular, T1 competence positively and significantly predicted T2 achievement ($\beta=.32, p<.01$); but the path from T1 effort to T2 achievement was near zero ($\beta=-.07, p=.19$). In contrast, T3 achievement was only significantly predicted by T2 effort ($\beta=.12$, $p<.01$) but not T2 competence ($\beta=.08$, $p=.10$). In terms of mutual predictions between competence and effort, only the path from T2 effort to T3 competence was significant ($\beta=.13, p<.05$).

The REM was partially supported when considering the paths between competence and achievement. Between T1 and T2, competence reinforced achievement ($\beta=.32$), whereas T1 achievement also had additional contribution to T2 competence ($\beta=.16$). However, whereas T2 achievement continued to contribute significantly to competence at T3 ($\beta=.16$), the contribution of T2 competence to T3 achievement was weak ($\beta=.08$, not significant).

For effort, there was no evidence of mutual relations with achievement between T1 and T2. However, the reciprocal effects became significant between T2 and T3.
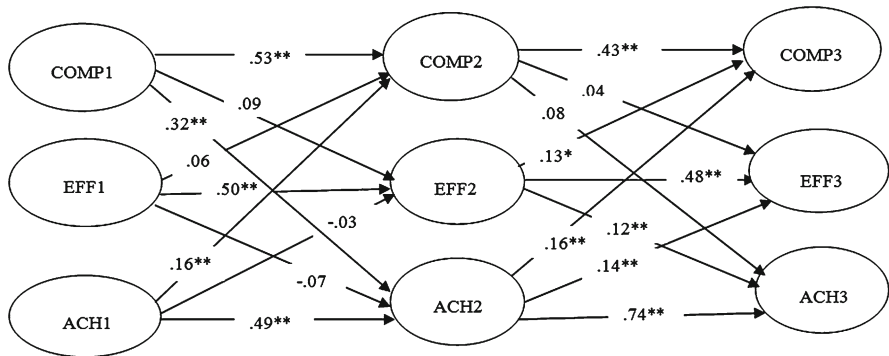
Note: * ** $p< .01, p< .05$

COMP1-3 = competence time 1 to 3; EFF1-3 = effort time 1 to 3; ACH1-3 = achievement time 1 to 3.

Fig. 20.1 Paths of the REM

The path from T2 effort to T3 achievement was significantly positive ($\beta = .12$), whereas T2 achievement also had additional contribution to T3 effort ($\beta = .14$). In sum, the REM seemed to be stronger for competence at the very early stage of middle school (grade 7), but it became stronger for effort after the first year of middle school (between grade 8 and grade 9).

Discussion

The present investigation empirically modeled 3-year longitudinal relations between competence, effort, and academic achievement in schoolwork among Chinese middle school students. In answering the research questions, the results showed that:

1. Both competence and effort scales remained stable across years.
2. Although an REM was found between competence and achievement and between effort and achievement, the predictions were not consistent across time waves.

Specifically, we found that between grades 7 and 8, the REM was observed for competence, but between grades 8 and 9, the REM was found for effort instead. That is, from grade 8 to grade 9, it was prior effort, not competence (in grade 8), that had positive contribution above and beyond the effects of other variables to achievement in grade 9.

The two psychological factors investigated in the study, namely, self-concept of competence and effort goal, are important ones, due to their prominent roles in predicting school achievement shown in numerous studies (e.g., Yeung, 2011; Yeung et al., 2012). Our longitudinal study has shown that the developmental pattern of competence and effort in the first 3 years of secondary schooling among Chinese students seems to be distinct from patterns found in Western student samples. Most Western samples showed that competence and effort beliefs tend to experience a decline as they mature, especially in their early adolescence (e.g., Murphy & Alexander, 2000; Yeung, 2011; Yeung & McInerney, 2005). In contrast, our Chinese sample showed strong stability during this period. Repeated measures ANOVAs showed that there were no significant differences among competence ($F(2, 1240) = 1.02$, $p = .36$) and effort beliefs ($F(2, 1240) = 2.96$, $p = .09$), respectively, across 3 years.

Two possible reasons may contribute to the discrepancy between our findings and previous studies. First, under the dominant Confucian thinking in China, Chinese students may appreciate effort and diligence much more than Western students. Throughout school years, Chinese educational systems and teachers promote the idea of hard work for excellence and encourage students to exert effort in schoolwork instead of emphasizing innate abilities (Kember & Watkins, 2010; Lee, 1996; Li, 2003). As a result, deep in most Chinese students' conceptions, irrespective of their perceived innate ability, is effort exertion and perseverance as the key to success. This relation between perceived ability and effort is evidenced in our data showing a stable correlation between competence and effort over time (rs = .42, .47,

and .52 for T1, T2, and T3, respectively). Although there appears to be a pattern of increasing correlation over time, the apparent increase was not statistically significant ($z=-1.47$, $p=.14$). Hence, the pattern seems to support Salili's (1996) argument that Chinese students tend to believe that ability can be enhanced through effort. The consistently higher mean scores for effort across time points (4.09, 4.13, and 4.06, respectively) than for competence (3.25, 3.28, and 3.29, respectively) also showed that the Chinese students endorsed effort more than competence in their schoolwork.

A second possible reason may be differences in design between previous studies and ours. While our study traced the two psychological variables of the same students in 3 years, most of other studies were in fact cross-sectional, because the participants in different grades were different students (e.g., Yeung, 2011; Yeung & McInerney, 2005). Therefore, the drop found in these studies could possibly be attributable to sample characteristics rather than a true decrease in these factors. Due to different designs, comparison between our study and these cross-sectional ones would be difficult.

Congruent to our expectation, we found evidence of an emphasis of Chinese students on effort over competence. This finding once again reflects that Chinese educational theories and cultures merit effort, diligence, and assiduousness. Nevertheless, although our students rated more highly on effort over competence, our results showed that the correlations between competence and achievement (rs from .30 to .43) were consistently stronger than those between effort and achievement (rs from .11 to .21). The magnitude of association between competence and achievement and between effort and achievement were similar to those in previous studies (for self-concept studies, e.g., Chapman & Tunmer, 1997; Marsh & Craven, 2006; for motivation studies, e.g., Gehlbach, 2006; Gutman, 2006). In a previous study which simultaneously examined the relationship between competence, effort, and achievement, Yeung and Yeung (2008) found that the correlations between competence and achievement were higher (rs$=.37$ and .40) than those between effort and achievement (rs$=.20$ and .26) for both Australian and Hong Kong samples. Consistent with this pattern, our current results from the 3-year span also demonstrated that competence tended to more strongly relate to achievement than effort goal did for Asian learners such as those in Mainland China. These results imply that even for learners with a strong cultural preference for effort, competence beliefs do have a stronger association with achievement than do effort beliefs; hence, students' positive competence beliefs should be cultivated and nurtured irrespective of cultural preference.

In terms of the predictions made by competence and effort to achievement, our results did not show a consistent pattern of reciprocal effects. Rather, we found that prior competence and effort made different predictions to subsequent achievement depending on the grade level (i.e., stage of development). Chinese students' self-perceptions of competence, not their effort goal surveyed in grade 7, made significant and positive predictions to their achievement in grade 8. In contrast, 1 year later, the same students' effort, rather than competence measured in grade 8, was found to have a significant and positive path to their grade 9 achievement.

Considering that the two psychological scales were stable in the 3 years, this result may suggest that in the transition between elementary and secondary school, a positive self-evaluation and appreciation of one's ability were more important than the effort goal students set in helping them achieve well academically. As the students matured and when they evolved from prepuberty to adolescence, a healthy and positive belief in effort emerged as a more salient factor enabling a student to excel in academic achievement.

The different relational patterns among competence, effort, and achievement in the 3 years may also reflect the transition from primary to secondary schooling, in which classroom and school environments, teachers' supports, and peer groups could significantly differ from students' previous experience (Frey, Ruchkin, Martin, & Schwab-Stone, 2009; Hanewald, 2013). At the same time, students are also at a critical stage of gradually growing into adolescents. During this period, they may not only experience cognitive and social developmental changes but also changes in psychological and emotional aspects (Hines, 2007). At this complicated stage, students tend to continuously shape and correct their ego, world views, values, and concepts of both self and others (Alsaker & Olweus, 2002). All these external and internal factors may impact achievement goals that students set for themselves, because goals are not fixed and can fluctuate according to their experience and environments (Ames, 1992; Maehr & Midgley, 1991).

Nevertheless, our data showed that students in our sample were quite stable in their effort goals and it is the strength of such goals in guiding achievement which emerged after the first year of secondary schooling that is of particular interest. It may be that these Chinese students brought with them a strong sense of competence when they were successful in advancing to secondary school and this sense of competence was based on their high achievement in primary school. Hence, the reciprocal effects between achievement and sense of competence were prevalent. By the end of the first year of secondary school, the students might have experienced the keen competition among their peers, and based on both their traditional beliefs and their actual experience, effort became a more prevalent factor related to achievement.

Directions for Future Research

A number of interesting directions were revealed from the current study. Firstly, some researchers of achievement motivation with students in Western countries have suggested that students pursuing mastery goals tend to think that success is a result of hard work, whereas students holding performance goals may consider high ability as a key factor to success (Duda & Nicholls, 1992). This may suggest that the association between ability and performance goals and between ability and mastery goals may be quite different. Since we have limited our investigation to ability and effort, future studies should attempt to include both mastery and performance goals together with self-concept in relation to achievement. It would also be interesting to

compare the relations of mastery and performance goals to competence beliefs matching participants' age and gender from countries under the influence of Western cultures that value innate abilities and countries that are influenced by Confucianism to appreciate efforts. By contrasting the mutual relations of these psychosocial constructs and their influences on achievement outcomes, the research may shed light on the impact of sociocultural elements on the formations of self-beliefs and achievement goals in various cultures and settings.

Secondly, due to increasing recognition of cultural influences on students' values, perceptions, and achievement goals (Elliot, Chirkov, Kim, & Sheldon, 2001; King & Watkins, 2012), future research should attempt to add social goals in the research design, particularly with Chinese students. In a recent article, King and Watkins (2012) explained the difference between Western culture emphasizing individualism and Asian culture dominated by collectivism. They pointed out the inappropriateness of measuring Asian students' achievement goals exclusively relying on "individualistically-based goals" (p. 112) and called for an inclusion of social goals in order to "enrich achievement goal theory" (p. 115). It would be meaningful to design valid measurement tools to capture Asian students' social goal orientations and to tap into their formation of self-beliefs from a collectivist perspective (Luo, Hogan, Yeung, Sheng, & Aye, 2014). In this way, cultural influences can be better understood and addressed in academic settings.

Thirdly, while the current study only investigated the cognitive component of self-concept (i.e., sense of competence) in academic work in a general sense, future research may attempt to include also academic self-concepts in different subject domains and nonacademic self-concepts such as physical abilities, physical appearance, peer relations, and parent relations among Chinese students (see Watkins & Qi, 1994). It is possible that sociocultural contexts would play a significant role on the formations of self-beliefs and goals in a range of academic and nonacademic domains.

Conclusion

The present study with Chinese students found both similar and dissimilar results from studies with Western students. In contrast to the declines in academic-related beliefs found in Western student samples, the Chinese students in the present study tended to be quite stable in such beliefs as they matured. While both competence and effort were consistently associated with achievement in all 3 years, the two constructs made different predictions to achievement depending on the grade level. In the first year of middle school, the students seemed to rely on their self-appraisal of ability which emerged as a significant predictor of achievement, which in turn also contributed to their perceived competence. As students matured, effort became a more salient predictor of academic achievement, which in turn also contributed to further effort. These findings are significant in helping Chinese students to optimize their achievement through an appropriate emphasis on competence at earlier stages but on effort at later stages of development.

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Chapter 21
Effort Counts and Goals Matter: The Effects of Effort and Achievement Goals on Moral Image, Approval, and Disapproval in a Chinese Cultural Context

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Abstract Students in East Asia, including those in Taiwan, stand out on international math assessments and tend to attribute their academic achievement to effort. Moreover, previous studies indicated that, in the Confucian cultural context, there are two types of goals for achievement pursuits: *vertical goals*, such as academic achievement, constructed mainly upon the social expectations of significant others, and *non-vertical goals* constructed on sources other than social expectations. This study aims to examine the effects of effort and achievement goals on students' moral image and perceived parental/teacher approval and disapproval in success/failure situations. Self-made scenario questionnaires were completed by 489 junior high school students in the greater Taipei metropolitan area. A 2 (high/low effort) × 2 (vertical/non-vertical goal) between-subject design was adopted. The results showed that there are interaction effects of effort and achievement goal. In success situations, hardworking students tend to be viewed as more morally sound and are perceived to be given greater approval from parents and teachers for pursuing vertical goals than for pursuing non-vertical ones. In failure situations, students working hard to achieve vertical goals tend to be regarded as having the best moral image, while those who do not work hard tend to have the worst moral image and are

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perceived as receiving the most disapproval from parents and teachers. Theoretical and educational implications are discussed.

Keywords Effort-making • Achievement goal • Moral image • Approval • Disapproval • Chinese culture

Introduction

Students from East Asian Confucian societies consistently demonstrate outstanding performance on international comparisons of academic achievement (Trends in International Mathematics and Science Study [TIMSS] and Programme for International Student Assessment [PISA]), especially in the fields of math and science (Martin, Mullis, Foy, & Stanco, 2012; Mullis, Martin, Foy, & Arora, 2012; OECD, 2014). It would be interesting to examine what motivates Asian students to perform well in their academic pursuits. Researchers have suggested that intrinsic motivation based on personal choice and intrinsic enjoyment tends to result in better engagement in the learning process and thus greater academic performance (Deci & Ryan, 2000). Previous studies have shown positive correlations between students' intrinsic motivation and academic achievement (Gottfried, 1990; Lepper, Henderlong Corpus, & Iyengar, 2005), suggesting that the more students are able to choose the school tasks they are interested in and the more they desire to master the tasks, the better they perform in schoolwork.

However, studies have also shown that East Asian students in Confucian circles outperform their western counterparts on the TIMSS and PISA despite displaying relatively negative attitudes toward studying math and science (Leung, 2002, 2006). It has also been found that in Taiwan, intrinsic interest and fun do not promote student engagement with learning as much as in the Western context (D'Ailly, 2003). To explain such a perplexing phenomenon, the authors proposed that, instead of being motivated purely by the intrinsic enjoyment of learning the academic subjects of one's choice, Taiwanese students are motivated to pursue academic performance out of a sense of their moral obligations as students, obligations reinforced by significant others such as parents and teachers. Moreover, we propose that in comparison with other achievement goals that students may choose to pursue, academic achievement tends to be perceived as a goal that the students are obliged to pursue to meet parental expectations and societal norms.

It is natural that one must expend effort to achieve goals. However, in the Confucian cultural context, effort-making in pursuing academic pursuits may be given greater moral salience than that in pursuing other achievement goals due to the obligatory nature of academic pursuits. Such a sense of role obligation is usually transmitted to students through rewards and punishments assigned by important socializing agents (i.e., their parents and teachers). The success of such cultural transmission of role obligation depends on whether the students themselves receive and internalize such beliefs. This study thus examines whether students believe that

when students pursue academic goals, parents and teachers tend to express greater approval to those who work harder and greater disapproval to those who do not work hard, and that when students pursue nonacademic goals, the same trend exists, but to a lesser degree. It is possible that students believe that parents and teachers approve of academic pursuits more than nonacademic pursuits. In short, the current study aims to investigate whether the effects of achievement goals (goals matter) and effort (effort counts) on moral image, perceived approval, and perceived disapproval exist in a Chinese cultural context.

Two Types of Achievement Goal

The authors propose that in a Confucian society, the construction of one's goals for achievement pursuits is mainly based on different sources. Two types of culturally specific achievement goals exist in a Confucian society: vertical goals and non-vertical goals (Chen, Wang, Wei, Fwu, & Hwang, 2009; Hwang, 2012). A *vertical goal* is defined as a goal constructed mainly upon the social expectations of significant others such as parents and teachers. The performances of individuals in their pursuit of these goals are ranked into a vertical ladder of achievement by others. Individuals are usually obliged to meet parental expectations and compete with their peers to climb up the "achievement pyramid" ladder by, for example, attaining high achievement, getting high-paying jobs, or acquiring high status and fame. Thus, a vertical goal is characterized by high parental expectations, intense peer competition, high social value, a strong sense of obligation, and a lack of personal choice. On the other hand, a *non-vertical goal* is defined as a goal constructed on sources other than social expectations. Individuals may choose and define the content and criteria of their goals from a wide variety of domains. Such goals may include personal hobbies or peer-group activities aimed at self-contentment or peer recognition. Thus, a non-vertical goal is characterized by a higher degree of personal choice, less of a sense of obligation, and lower parental expectations, peer competition, and social value.

Unlike the prevailing definition of "achievement goals" as proposed by Dweck and and Leggett (1988), which emphasized the inner mechanism of individuals' goal setting in learning processes (mastery vs. performance goal), our definition of achievement goals focuses on the degree of individuals' identification with societal recognition and approval in setting their goals in certain domains. The differences lie in that the constructs proposed by Dweck and Leggett emphasizes intrapersonal traits and beliefs, whereas our conceptual framework focuses more on significant others' expectations in interpersonal networks.

In the Confucian cultural tradition, academic achievement has long been perceived as a major vertical goal for students to pursue. They are expected to study hard and climb the "pyramid ladder" of achievement to attain status and wealth. By doing so, they are able to fulfill their moral obligations as filial children and glorify their parents and family. In ancient China, the pyramid ladder was built around the

national civil service examination (*ke-ju*科舉), through which only the top scholars were selected for placement into the hierarchical ladder of government offices (Chan, 1996). In order to climb to the top, one had to study state-mandated books of classics in order to pass the examination (Zeng, 1999). Thus, hard work and perseverance in such a pursuit were highly regarded and ascribed great moral significance.

This centuries-old examination system continues today; however, the content has been changed to modern academic subjects such as math, science, and English, as mandated by national entrance examinations. Nowadays, students are expected to study hard and climb the "school pyramid ladder" by getting good grades, entering a "star school," graduating with an "ivy-league" diploma, and preparing for a prosperous future with fame and wealth. Thus, today, pursuing academic achievement in school and performing well on exams are perceived as vertical goals for students that they achieve to fulfill their duties of being good children and students. This is especially true for junior high school students, who are climbing the first critical pyramid ladder in the schooling system. In junior high school, they finish their compulsory education for all and strive for admission to highly selective senior high schools. They are expected to work hard and outperform their peers on high-stakes exams to enter the "star" high schools. Parents and teachers tend to adopt a variety of approval/disapproval strategies to motivate these students to study hard and perform well academically during this critical period.

As such a vertical goal is so essential to student life, other non-vertical pursuits such as sports and the arts, which are not included on the high-stakes exam and thus are usually deemed "minor" subjects, seem to be relatively less salient and significant. Parents and teachers do not expect great effort to be expended on achievements in these subjects. Given the different natures of the two types of goals, the effects of these two goals may differ in terms of the moral value of effort-making and approval/disapproval by parents and teachers.

Effect of Effort and Achievement Goals on Moral image

In the Confucian tradition, effort-making has been ascribed great moral significance. On the one hand, effort is an essential element in human endeavors to strive for the ultimate good. This notion is deeply rooted in the traditional Chinese worldview of how the universe and the human sphere operate and echo each other. By observing the law of nature (*tian dao*天道), which describes nature as constantly moving, evolving, and growing since the creation of the universe, human beings, as the paragon of creation, should emulate natural law and make unremitting efforts to improve themselves through their life pursuits. As the ancient book of *I-Ching* describes, "Just as the celestial bodies never run out of energy to orbit round and round, so we as human beings are obliged to strive unendingly to better ourselves" (*Tian xing jian, junzi yi ziqiang buxi*天行健, 君子以自強不息) (Fwu, Wei, Chen, & Wang, 2014). Xunzi states in his work "An Encouragement to Study" that this

approach to life, that of constant effort-making, is a moral duty and an obligation for anyone who is considered human; furthermore, if this obligation is not carried out, one's behavior is unacceptable and may even be analogous to bestial behavior (Lee, 1996). Constant effort is the way to cultivate one's moral perfection. Lack of effort is usually viewed as a fatal character flaw.

On the other hand, effort is also considered indispensable in the cardinal relationships within the family. According to Confucian ethics for ordinary people, individuals' lives are the continuation of their parents' physical lives; thus, the parent–child blood bond is regarded as the cardinal relationship in all human interpersonal networks. Mutual fulfillment of role obligations—where parents should be benevolent and children are to be filial (*fu ci zi xiao*父慈子孝)—is prescribed. As education is considered the primary means of climbing the "achievement pyramid" for individuals and their families, the academic performance of school-age children is the focal concern of the whole family. Parents should provide as good an education as possible for their children to fulfill their duty as benevolent parents; in return, children should study as hard as they can to fulfill their obligations to their parents as filial children (Hwang, 1999). They are also expected to study hard in school as a way to fulfill their duties as students. Those who meet such expectations are deemed "good students" and are more likely to be viewed as having high moral caliber by parents and teachers. In contrast, those who do not study hard are likely to be viewed as deficient in morality (Fwu, Wei, Chen, & Wang, 2014). In other words, the level of effort and moral image are positively correlated. One's moral image is considered to be a consequence of effort.

Moreover, the moral connotations of effort may vary with the two types of goal pursuits. In the school context, academic subjects such as math and English, which are included on the high-stakes nationally mandated entrance examination, are generally considered vertical goals, whereas non-academic subjects such as art and sport, not included on the exam, are usually viewed as non-vertical pursuits (Hwang, 2012). Thus, those students who study hard to achieve vertical goals (academic subjects) are more likely to be viewed as "hardworking, diligent, and responsible" than those pursuing non-vertical goals (non-academic subjects), because the former group fulfills their role obligations to achieve such socially important goals. By the same token, those who do not work hard on vertical goals are more likely to be considered as "lazy and irresponsible" than those pursuing non-vertical goals. Thus, it is hypothesized that there are interaction effects of effort and achievement goal on moral image for both success (H1-1) and failure (H1-2) situations.

Effect of Effort and Achievement Goal on Approval and Disapproval

In addition to the moral implications, effort may also affect the patterns of approval and disapproval for human behaviors. In the Confucian cultural tradition, it is widely believed that the heavens will reward individuals in accordance with the

level of effort they put forth. Those who expend more effort deserve greater approval in return. Their dreams are more likely to be realized and their prosperity gained under the auspices of the heavens. This strongly held belief is captured in such idioms as "the heavens will reward those who make effort (*tian dao chou qin*天道酬勤)," "the heavens will not disappoint those who work really hard (*huang tian bu fu ku xin ren*皇天不負苦心人)," and "you reap what you sow (*yi fen gengyun, yi fen shouhuo*一分耕耘,一分收穫)." All these expressions of the moral principle suggest that the more effort one puts in, the more gains one should be able to harvest (Fwu, Wei, Chen, & Wang, 2014). On the other hand, those who do not exert themselves are doomed to failure and poverty, as expressed in "a mountain of wealth will be emptied if one is idle every day (*zuo chi shan kong*坐吃山空)." Those who are idle are viewed as lacking moral caliber and deserve disapproval for such a character flaw. In other words, the level of effort one makes is positively related to the award/approval that one receives, whereas the level of effort one expends is negatively associated with the punishment/disapproval that one receives.

Such deep-rooted ontological beliefs are also reflected in parenting and schooling practices. At home, parents are expected to instill these values into their children, and they do so in a variety of ways, providing material, verbal, and social rewards when children exhibit diligence in academic endeavors. By contrast, if children do not study hard, they are usually criticized or punished for being lazy and irresponsible, and for not fulfilling their duty. In school, teachers reinforce such beliefs through expressing approval for high levels of effort, and especially for high academic achievement, and by expressing disapproval for low levels of effort. Through this all-encompassing process of socialization, students internalize these effort-related cultural values by receiving approval for diligence and disapproval for laziness from both parents and teachers. In this way, the relationship between effort-making and approval/disapproval is established.

Moreover, this pattern of approval and disapproval may vary with different types of achievement goals. In cases of success, effort-making to achieve vertical goals will generate greater approval from parents and teachers than that to achieve non-vertical goals. The reason is that those who work hard on vertical goals (i.e., study hard academically) are viewed as fulfilling their role obligations to pursue a goal with great social importance. By the same token, those who do not work hard on vertical goals tend to receive less approval from parents and teachers than those pursuing non-vertical ones, since they do not fulfill their role obligation on socially important goals and "do not deserve what they get (*bu lao er huo*不勞而獲)." Therefore, we hypothesize that there is an interaction effect of effort and achievement goal on perceived parental and teacher approval in cases of success (H2-1).

In cases of failure, it is perceived that those who work hard on vertical (academic) goals receive less disapproval from parents and teachers than those pursuing non-vertical (nonacademic) ones, whereas those who do not work hard on vertical goals receive greater disapproval than those devoted to non-vertical ones. Parents and teachers express such disapproval because those who do not study hard do not fulfill their role obligations in important goals. By expressing disapproval, they intend to send a signal to the children that such undesirable behaviors should be corrected. Therefore, we hypothesize that there is an interaction effect of effort and

achievement goal on perceived parental and teacher disapproval in cases of failure (H2-2).

Research Framework and Hypotheses

Based on the above inferences, the authors propose a framework describing the effect of effort and achievement goal on moral image, perceived approval, and perceived disapproval, as shown in Table 21.1.

According to the above framework, four hypotheses are listed as follows:

In cases of success:

H1-1: There is an interaction effect on moral image between level of effort and type of achievement goal.

H2-1: There is an interaction effect on perceived expression of approval between level of effort and type of achievement goal.

In cases of failure:

H1-2: There is an interaction effect on moral image between level of effort and type of achievement goal.

H2-2: There is an interaction effect on perceived expression of disapproval level of effort and type of achievement goal.

Research Design

Participants

Participants were 489 (228 boys, 253 girls) eighth graders from 16 classes at 8 public junior high schools in the Taipei metropolitan area in Taiwan, including 240 eighth graders and 247 ninth graders, aged about 14–15 years old.

Table 21.1 Research framework

Levels of effort	Types of achievement goal	Psychological mechanism	Success		Failure	
			Moral image	Perceived approval	Moral image	Perceived disapproval
High effort	Vertical	Fulfilling role obligation	High	High	High	Low
	Non-vertical	Unrelated to role obligation	Medium	Medium	Medium	Medium
Low effort	Vertical	Not fulfilling role obligation	Low	Low	Low	High
	Non-vertical	Unrelated to role obligation	Medium	Medium	Medium	Medium

Instrument

The researchers applied the scenario stimulation method, which allows more consideration of social contexts than the experimental method and provides more room for manipulation than field observation or interview (Peng, Nisbett, & Wong, 1997). The questionnaire developed for the study included scenarios of a hypothetical student experiencing success or failure and ten items for the respondents to evaluate the moral image, approval, and disapproval received by that student.

The scenarios in the study varied in the "degree of effort" and "type of achievement goal" (independent variables). Effort was divided into "high effort" and "low effort," and "type of goal" included "math (vertical goal)" and "art (non-vertical goal)." Thus, there were four versions of the success scenario: high effort/math (HE/M), low effort/math (LE/M), high effort/art (HE/A), and low effort/art (LE/A). The HE/M and LE/M scenarios were:

> Minghua is a high school student. He (rarely) studies very hard in math. He always (rarely) reviews what the teacher taught, always (seldom) has his homework done and always (never) spends extra time doing exercises on worksheets. Minghua got straight A's in math for the past 3 years.

The HE/A and LE/A scenarios were:

> Minghua is a high school student. He (rarely) works very hard in art classes, always (seldom) practices drawing at home, and frequently (never) spends time drawing outdoors on weekends. Each semester, the school holds a painting contest, and every student is welcome to participate. Minghua has participated in the contest every semester, and he has always won first prize over the past three years.

In the case of failure, there are also two levels of effort and two types of goals, comprising four scenario versions. Only the achievement in the scenario was changed from success to failure: for math (vertical), from "straight A's" to "a failing F"; for art (non-vertical), from "first prize" to "being eliminated in the very first round of competition."

The 10 response items included (1) 3 items on "moral image" ("if Minghua fulfills his duty", "if Minghua is a responsible student", and "if Minghua is a good student") (Cronbach's alpha=.94 in the case of success; Cronbach's alpha=.93 in the case of failure), (2) 2 items on "perceived approval" in the case of success ("if parents usually praise children like Minghua" and "if teachers usually praise students like Minghua") and 2 items on "perceived disapproval" in the case of failure ("if parents usually punish children like Minghua" and "if teachers usually punish students like Minghua"), and (3) 5 items as a manipulation check to verify the characteristics of vertical/non-vertical goals, including the following: "My parents expect me to perform excellently in math/art", "Math/art is an important subject", "I am obligated to learn math/art", "I do not have a choice but to learn math/art", and "My classmates and I compete for math/art achievements." All ratings were measured on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree).

Procedures

Participants were randomly assigned to one of 8 scenarios (4 scenarios involving success and 4 scenarios involving failure). Teachers administered the instrument to students during class, and the rating scale was explained. After reading each scenario, participants were asked to fill out the questionnaires anonymously.

Results

Manipulation Check of Types of Achievement Goal

In order to examine the differences between the two types of achievement goals, five items in the questionnaire were used to examine the characteristics of achievement in the math and art domains. Table 21.2 shows the descriptive data for parental expectations, peer competition, role obligation, freedom of choice, and the importance of the math and art domains. The *t*-tests indicated significant differences between the math domain and the art domain on all five items ($ps < .001$). The effect size (Cohen's *d*) statistics showed that all the variables, except one, had large effects (> 0.8). This strengthened our confidence that the vertical and non-vertical goals were indeed two different types of goal. In summary, compared with a non-vertical goal (art), a vertical goal (math) is characterized by higher parental expectations, stronger peer competition, greater importance, a greater sense of obligation by students, and less freedom of choice.

Table 21.2 Means and *SD* of characteristics of vertical and non-vertical goals

|	Vertical goal (math)	Non-vertical goal (art)	*t*-value	Cohen's *d*
	n = 243	n = 246		
Parental expectations	4.78 (1.33)	3.70 (1.64)	8.02**	0.72
Peer competition	4.42 (1.45)	3.73 (1.63)	4.93**	0.45
Importance	4.64 (1.34)	2.73 (1.32)	15.78**	1.44
Role obligation	4.12 (1.52)	2.36 (1.31)	13.72**	1.24
Freedom of choice	3.49 (1.64)	5.12 (1.27)	−12.25**	−1.11

Notes. 1. ** $p < .001$. Standard deviations are shown in brackets
2. Cohen suggested that $d = 0.2$ be considered a 'small' effect size, 0.5 a 'medium' effect size, and 0.8 a 'large' effect size

Table 21.3 Means and *SD* of moral image and perceived approval in math and art domains in the case of success

	Vertical goal (Math)				Non-vertical goal (Art)				Eta square (η^2)		
	High effort		Low effort		High effort		Low effort				Interac-
	($n=69$)		($n=51$)		($n=67$)		($n=55$)		Goal	Effort	tion
Moral image	5.15	(0.87)	2.24	(1.07)	4.49	(1.07)	2.47	(0.85)	.012	.619	.049
Perceived approval from parents	5.19	(0.91)	2.96	(1.69)	4.18	(1.30)	3.24	(1.62)	.017	.249	.052
Perceived approval from teachers	5.16	(0.92)	2.86	(1.64)	4.42	(1.14)	3.00	(1.64)	.013	.326	.026

Notes. Values in columns represent means. Standard deviations are shown in brackets
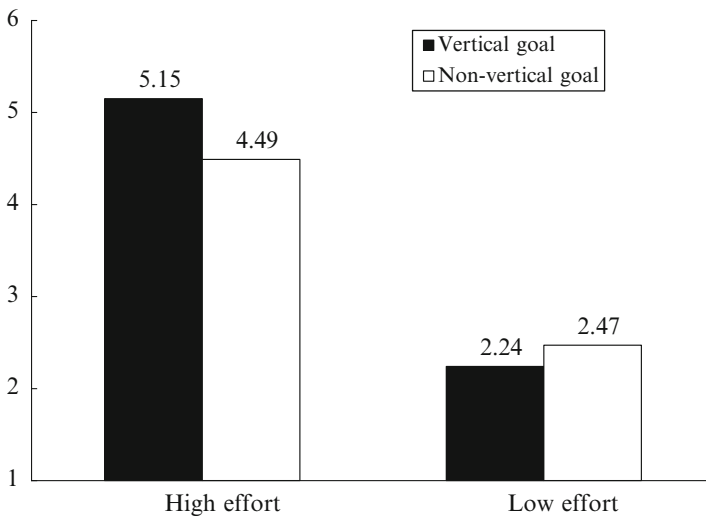
Fig. 21.1 Means of "moral image" in the case of success (1=strongly disagree; 6=strongly agree)

Interaction Effect of Effort and Achievement Goal on Moral Image and Approval in the Case of Success

Table 21.3 shows the mean and *SD* of dependent variables in the case of success. In order to examine H1-1 and H2-1, a 2 (high vs. low effort)×2 (vertical vs. non-vertical goal) MANOVA was conducted. In success situations, the main effect of effort was statistically significant (*Wilks' Lambda*=0.36, $p<.001$). The interaction effect of effort and goal was significant for "moral image", "perceived approval from parents" ($F[1, 238]=12.38, 12.93, \eta^2=.05, .05$, respectively, $ps<.01$), and "perceived approval from teachers" ($F[1, 238]=6.46, \eta^2=.03, p<.05$). The means of the three items in two types of goals are also shown in Figs. 21.1, 21.2, and 21.3.
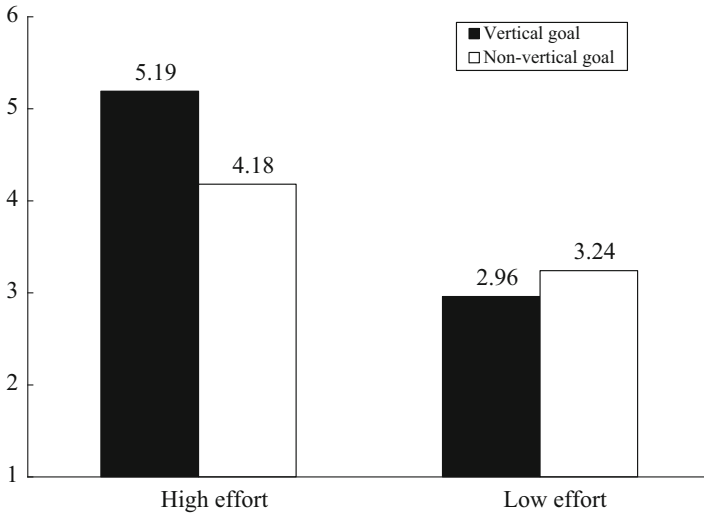
Fig. 21.2 Means of "perceived approval from parents" in the case of success (1 = strongly disagree; 6 = strongly agree)
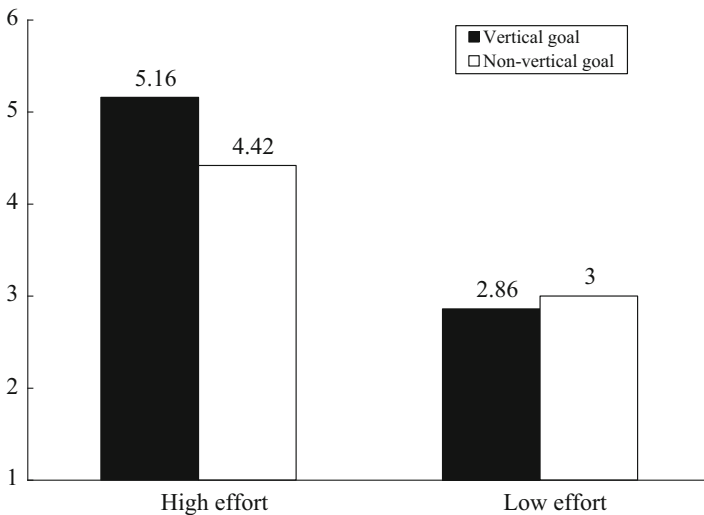
Fig. 21.3 Means of "perceived approval from teachers" in the case of success (1 = strongly disagree; 6 = strongly agree)

The simple main effect analysis indicated that, for those who work hard, there are significant differences in "moral image" and "perceived approval" from both parents and teachers between two types of goals. Hardworking students tend to possess a better moral image and perceive more approval from parents and teachers for

pursuing vertical goals (M=5.15, 5.19, 5.16, SD=0.87, 0.91, 0.92, respectively) than for pursuing non-vertical goals (M=4.49, 4.18, 4.42, SD=1.07, 1.30, 1.14, respectively, ps<.01). In contrast, for less engaged students, there are no significant differences on "moral image" and "perceived approval" between these two types of goals. In summary, these results support H1-1 and H2-1 that there are interaction effects of effort and goal on moral image and on perceived approval from parents and teachers.

## Interaction Effect of Effort and Achievement Goal on Moral Image and Disapproval in the Case of Failure

Table 21.4 shows the mean and SD of dependent variables in the case of failure. In order to examine H1-2 and H2-2, a 2 (high vs. low effort) × 2 (vertical vs. personal goal) MANOVA was conducted. In failure situations, the main effects of goal and effort were statistically significant (*Wilk's Lambda*=0.9, 0.3, respectively, ps<.001). The interaction effect of effort and goal was significant for "moral image", "perceived disapproval from parents" (F[1, 243]=66.28, 10.38, η^2=.21, .04, respectively, ps<.01), and "perceived disapproval from teachers" (F[1, 243]=3.91, η^2=.02, p<.05). The means of the three items in two types of goals are also shown in Figs. 21.4, 21.5, and 21.6.

   The simple main effect analysis on moral image indicated that, whether students work hard or not, there is a significant difference in "moral image" between the two types of goal (ps<.01). Among the four groups, diligent students tend to be seen as having the highest moral caliber for pursuing vertical goals (M=5.10, SD=0.72), whereas lazy ones have the lowest moral image when pursuing the same type of goal (M=1.55, SD=0.64). Furthermore, the simple main effect analysis on disapproval revealed that less engaged students tend to receive more disapproval from parents and teachers for failure in pursuing vertical goals (M=4.30, 4.06, SD=1.66,

Table 21.4 Means and SD of moral image and perceived disapproval in math and art domains in the case of failure

| | Vertical goal (Math) | | Non-vertical goal (Art) | | Eta square (η^2) | | |
| | High effort | Low effort | High effort | Low effort | | | |
	(n=53)	(n=70)	(n=63)	(n=61)	Goal	Effort	Interaction
Moral image	5.10 (0.72)	1.55 (0.64)	3.98 (1.25)	2.24 (0.92)	.016	.700	.214
Perceived disapproval from parents	2.70 (1.53)	4.30 (1.66)	2.57 (1.34)	2.92 (1.53)	.058	.093	.041
Perceived disapproval from teachers	2.57 (1.46)	4.06 (1.77)	2.27 (1.30)	2.98 (1.54)	.048	.115	.016

Notes. Values in columns represent means. Standard deviations are shown in brackets
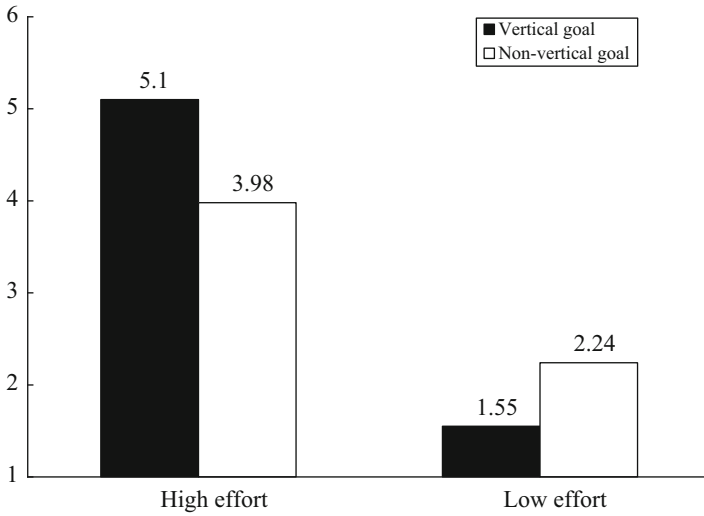
Fig. 21.4 Means of "moral image" in the case of failure (1 = strongly disagree; 6 = strongly agree)
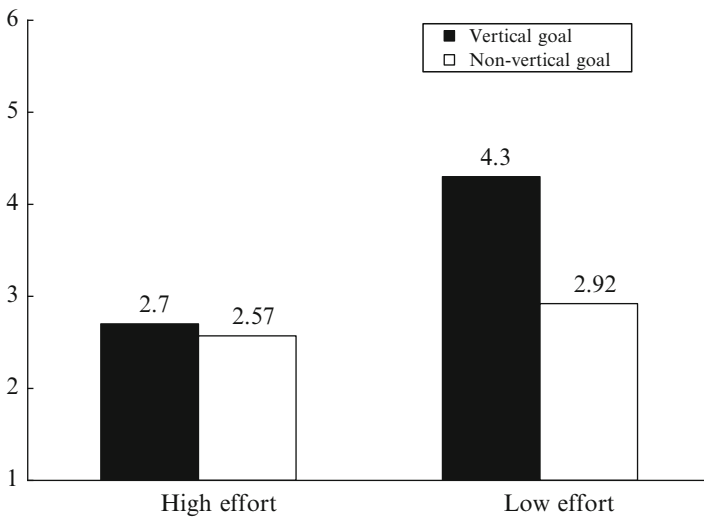
Fig. 21.5 Means of "perceived disapproval from parents" in the case of failure (1 = strongly dis-agree; 6 = strongly agree)

1.77, respectively) than for failure in pursuing non-vertical goals (M = 2.92, 2.93, SD = 1.53, 1.54, respectively, ps < .01), while for hardworking students, no differences in perceived disapproval exist between these two types of goals. In summary, these results support H1-2 and H2-2 that there are interaction effects of effort and goal on moral image as well as perceived disapproval from parents and teachers.
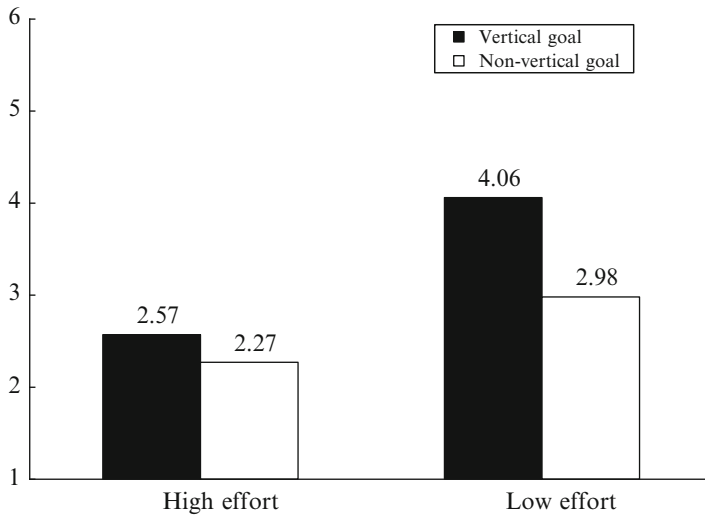
Fig. 21.6 Means of "perceived disapproval from teachers" in the case of failure (1 = strongly disagree; 6 = strongly agree)

Discussion

In summary, the results of this study supported our hypotheses that there are interaction effects of effort and goal on moral image and perceived parental/teacher approval as well as disapproval. Furthermore, simple main effect analysis indicated that, in success situations, hardworking students tend to be viewed as more morally sound and tend to receive greater approval from parents and teachers for pursuing vertical goals than for pursuing non-vertical ones. In failure situations, students working hard on vertical goals tend to be regarded as having the best moral image, while those not working hard have the worst moral image and are perceived as receiving the most disapproval from parents and teachers.

However, there are two unexpected results from the simple main effect analysis. In the case of success, for those who do not work hard, there is little difference in moral image and perceived parental/teachers' approval between vertical and non-vertical goals. It could be that those who do not work hard, whether on vertical or non-vertical goals, are usually considered lazy and irresponsible, an indication of flawed character and deficient morality. Furthermore, in cases of failure, for those who work hard, there is little difference in perceived parental/teacher disapproval between vertical and non-vertical goals. It is likely that parents and teachers tend to consider effort-making as a virtue in itself, and therefore would refrain from expressing disapproval to those who work hard but fail regardless of the types of goals they pursue.

These findings shed light on how students learn in the Confucian culture and added a new perspective to the literature of approval and disapproval in educational settings. The results have made the following theoretical and practical contributions

to our understanding of Asian students' academic learning processes, including their beliefs about effort and patterns of approval and disapproval.

Theoretical Significance

Deci and Ryan (2000) have suggested that goals based on self-determined choice satisfy basic human needs for autonomy and lead to greater engagement and higher-quality performance. As long as the goal is self-determined, it is perceived as equally relevant and important, no matter what kind of pursuit it might be. Thus, the spectrum of such self-determined goals can be quite broad among individuals, and there is no consensus about some pursuits being superior to others.

While such a self-determined pursuit is based on universal human nature, cultural and social values may play a role in shaping another type of goal pursuit (Yu, 1996), one which has been overlooked in the existing literature. This study bridges the gap in the literature and shows that in the Chinese cultural context, there are two types of goals. One is the non-vertical goal, based on autonomous choice, which is similar to Deci and Ryan's definition of self-determined motivation; the other is the vertical goal that one is obliged to pursue without much consideration for self-determination. The vertical goal highlights the primacy of pursuing a limited number of goals inscribed with great social significance and consensus. Thus, the vertical goal is perceived as more important/superior, and its spectrum is narrower than in the case of diverse self-determined pursuits. One is expected to expend one's effort on a limited set of goals in order to fulfill one's role obligations.

In addition to the types of goal, this study also demonstrates a distinct pattern of approval/disapproval in the Chinese cultural context. Previous studies found that greater approval was assigned for success than disapproval for failure in the pursuit of achievement (Hamilton, Blumenfeld, & Kushler, 1988; Hamilton, Blumenfeld, Akoh, & Miura, 1990; Lourenco, 1994). In the case of academic achievement, Hamilton et al. (1988) found that if students succeed academically, they receive greater approval; however, if they do not perform well, they receive less disapproval. These studies indicated that approval and disapproval are dependent on outcomes. Our study shows that in addition to outcomes, the process of effort-making must also be taken into account in evaluating how and why Taiwanese parents and teachers express approval and disapproval to their children. Embedded in the pattern of approval and disapproval may be the moral value of effort-making, which is a manifestation of fulfilling one's role obligations to oneself and to significant others.

Educational Implications

The moral value of effort reinforced through approval and disapproval by parents and teachers may serve as a double-edged sword. On the positive side, effort based on moral duty will motivate a student to study hard and overcome obstacles in

learning and finally to achieve better performance. Engagement in learning out of role obligation drives the average student to persevere and strive to understand concepts and master skills, even when faced with difficulties. In this way, those who are not good at academic learning in the beginning may finally achieve higher performance through constant effort in the long run. This may explain why Taiwanese students on average have performed relatively well on international math and science assessments such as the TIMSS and PISA.

On the negative side, reinforcing the moral significance of effort by approval and disapproval may put low-achieving students in an awkward position in academic pursuits. Those who study out of obligation but fail may continue to work hard to earn a good moral image, but they may "feel upset" about their failure because their hard work does not pay off. On the other hand, if they realize that they are not good at academic subjects and give up, they may be perceived as failing to meet their role obligations and thus be labeled "bad students." In other words, these low academic achievers are trapped in a dilemma of "feeling sad" or "being bad." This trapping effect of effort needs to be taken into account in understanding and guiding these students in academic learning.

To address this issue, the Taiwanese government is implementing a 12-year basic education for all that aims to alleviate the academic pressure on junior high school students in climbing the vertical ladder to elite (star) senior high schools (Ministry of Education, 2014). Under the new system, ideally students can enroll in any senior high school they wish to enter without taking entrance examinations; however, admissions to top senior high schools are still limited, so if applicants to a certain school outnumber the school quota, a set of multiple criteria will be used to screen applicants. Among these criteria, performance on a comprehensive academic exam still plays a key role. Therefore, it may be assumed that academic performance will still be highly valued by parents and teachers, who may still adopt various approval/ disapproval strategies to motivate students to study hard. Therefore, whether the new policy can actually alleviate students' pressure to pursue vertical goals is yet to be seen. As this study was conducted prior to the implementation of the new policy, it may serve as a baseline for future research to examine whether the pressure for academic competition has been reduced and whether low-achieving students are freer from the trapping effect of "being bad" or "feeling sad."

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Chapter 22
Motivation of Chinese Learners: An Integration of Etic and Emic Approaches

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Abstract This chapter reviews our research program on three important aspects of Chinese learner motivation: social goals, teacher controlling behaviors, and success/failure experiences. With an integration of etic and emic approaches, we found both cultural differences and similarities. On the one hand, we found that the same psychological construct might carry different meanings for Chinese and Western learners. On the other hand, we also found psychological processes that might be invariant across cultures. While social goals were considered as performance oriented and mostly maladaptive in the West, we found that the social goals of Chinese students were internally regulated obligation with adaptive effects on motivation. In a similar vein, we found that the same controlling behaviors of teachers carried different affective meanings for Chinese and American students. When compared to American students, Chinese students perceived teachers' behaviors as less controlling, which in turn led to higher motivation in class. We also found that success and failure experiences carried different motivational implications for students with Chinese and Caucasian students. While Caucasian students were more motivated after success, Chinese students became more motivated after failure. Despite these cultural differences, we also saw cultural similarities. For example, disregarding culture, the teacher–student relationship played an important role in student motivation. In short, our findings highlight the importance of integrating the etic and emic approaches in cross-cultural investigation. It is important to tease out what is culturally universal and what is culturally unique in the psychological processes in motivation.

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Professor David Watkins has been widely recognized for his contributions to the literature of student achievement motivation in a cross-cultural context. Throughout the past several decades, Watkins has conducted cross-cultural research in different areas of student motivation, including achievement goals and learning strategies (Watkins, McInerney, Akande, & Lee, 2003; Watkins, McInerney, Lee, Akande, & Regmi, 2002); cognitive development and learning approaches (Zhang & Watkins, 2001); processes of memorizing and understanding (Dahlin & Watkins, 2000); learning strategies, self-esteem, and attribution (Watkins, 2000; Watkins & Regmi, 1996); and self-concept and social acceptance (Mpofu & Watkins, 1997; Watkins, Yau, Dahlin, & Wondimu, 1997). His work in the Asian context has demonstrated that some Western models of achievement motivation may not be appropriate to Asian culture. For instance, Western achievement goal theories focus exclusively on individual-oriented goals such as mastery and performance goals but neglect the social aspect which is more salient in Chinese culture (King & Watkins, 2012; Watkins, McInerney, & Lee, 2002). While competitiveness is usually associated with maladaptive motivation in the Western literature, it predicts mastery goals positively in Chinese culture (King, McInerney, & Watkins, 2012). In addition, the dichotomy of intrinsic versus extrinsic motivation in the West appears to be less prevalent in the East (Watkins & Biggs, 1996). The above works by Watkins and his colleagues demonstrate that the meanings, functions, and operations of motivation constructs may vary across cultures. Watkins's pioneering works provide invaluable direction for research in student achievement motivation: It is imperative to investigate student achievement motivation from a cultural perspective.

We agree with Watkins that it is important to investigate whether and how the motivation theories developed in the West can be applied to Chinese learners. Chinese society represents a typical collectivistic culture that emphasizes interpersonal relationship and group harmony. Chinese students' learning motivation is driven not only by personal interest but also obligation to significant others including family and teachers (Hau & Ho, 2010; Li, 2005). The prevailing motivation theories have mostly been developed in the West, which represents a more individualistic culture that emphasizes independence and uniqueness, and thus the Western theories may not adequately capture the psychological mechanisms of Chinese students' motivation.

In the last decade, our team, which originated from the University of Hong Kong, has been studying motivation of Chinese learners. We are particularly interested in how motivation of Chinese learners is similar or different from that of their Western counterparts. We do not only adopt an emic approach that focuses on cultural differences but also an etic approach that goes beyond culture for commonalities. Berry (1999, 2013) described three putative stages of the development of cross-cultural psychology. The first stage involves an initial use of the imposed etic approach that aims to transport and test hypotheses and findings obtained in Western cultures to other cultures. The second stage involves an emic search for local phenomena. It is

a stage that looks for culturally relevant information and cross-cultural differences. In the third stage, the derived etic approach is used to create a global psychology. The findings of the first two stages are used in the third stage to enrich the existing theories so as to accommodate the cross-cultural differences and similarities that have been found (van de Vijver, 2013). The pursuit of globally applicable theories paradoxically requires the examination of cultural diversity. The emic approach is necessary in the second stage. However, there is also a need to go beyond the differences and pay attention to the discovery of psychological similarities that may underlie surface behavioral variation. As Berry (2013) succinctly states, a global psychology is "based on a sampling of behaviors in many cultures, using indigenous concepts and methods, and then examining them for their commonalities" (p. 60). To have a more comprehensive perspective on the phenomenon, there is a need to integrate emic and etic approaches and look for both cultural differences and similarities.

In this chapter, we review three themes of our research program: social goals, teacher controlling behaviors, and success/failure experiences. With an integration of emic and etic approaches, we shall discuss how we took cultural issues into consideration when we answered the following three questions about motivation. First, do social goals carry different or similar implications for the motivation of students with different self-construals or cultural backgrounds? Second, do the same teacher controlling behaviors carry different or similar implications for the motivation of students with different cultural backgrounds and teacher–student relationship? Third, do success/failure experiences carry different or similar implications for the motivation of students with different cultural backgrounds or regulatory focus? We discuss cultural issues at both individual and societal levels. For example, a person may have independent or interdependent self-construals no matter he/she is in individualistic or collectivistic societies (Markus & Kitayama, 1991). Therefore, both individual and societal levels should be taken into consideration if we want to examine student motivation comprehensively.

Social Goals and Chinese Learner Motivation

Achievement Goals

Achievement goal theories have been playing a prominent role in the research on student achievement motivation over the past two decades (Dweck & Leggett, 1988). Achievement goals are defined as students' reasons to achieve academically (Dowson & McInerney, 2003; Urdan & Maehr, 1995). Western literature mainly focuses on mastery and performance goals. Students who pursue mastery goals aim at developing and improving knowledge. Endorsement of mastery goals has been found to be associated with adaptive motivation outcomes, including positive attitudes toward learning, enjoyment, effective learning strategies, persistence in the face of setback, and self-efficacy (e.g., Ames, 1992; Kaplan, Middleton, Urdan, & Midgley, 2002; Pekrun, Elliot, & Maier, 2009; Wolters, 2004). In contrast, students

who pursue performance goals aim at demonstrating ability to others. Endorsement of performance goals is usually maladaptive, especially for students with low self-confidence who focus on avoiding failure or looking dumb in front of others. They are found to have higher anxiety, more self-handicapping behaviors, fewer help-seeking initiatives, and lower grades than their counterparts who endorse mastery goals (e.g., Elliot, 1999; Urdan, Ryan, Anderman, & Gheen, 2002; Wolters, 2004). The effects of mastery and performance goals have been investigated in Chinese culture, and the results are in general consistent with those in the West (e.g., Ho & Hau, 2008; Lau & Lee, 2008).

Achievement goal theories originated in Western culture which emphasizes independence and individual accomplishment. They have neglected the social aspect of motivation which is salient in Chinese culture. In Chinese culture, students work hard academically to fulfill their social obligation to parents and teachers (Hau & Ho, 2010; Li, 2005). These social goals, which refer to students' social reasons to achieve academically, are conceptually different from mastery and performance goals that are more individualistic in nature. In fact, the early review by Urdan and Maehr (1995) has already highlighted the importance of incorporating social goals into the achievement goal framework. A number of researchers including Watkins have investigated social goals, but they seldom investigate social goals from a cross-cultural perspective (Dowson & McInerney, 2003; King, McInerney, & Watkins, 2010; Leondari & Gonida, 2007; Watkins & Hattie, 2012).

Social Goals and Self-Construals

In the Western literature, studying for the social approval from authority figures is usually regarded as an extrinsic orientation (Harter, 1981) or an introjected regulation that involves an external locus of causality (Ryan & Deci, 2000). In the scale "Ego and Social Orientation" (Nicholls, Patashnick, & Nolen, 1985), the items that measure performance goals were found to have high correlation with items that measure social approval from teachers, and thus the two constructs were put together to form one reliable scale. In a study by Leondari and Gonida (2007), social goals to please significant others were found to correlate positively with performance goals and self-handicapping strategies.

Despite the significant association between social goals and performance goals, we think that they should not be treated as identical constructs. The correlations between social goals and performance goals in Chinese societies were usually lower (Cheng & Lam, 2013; King, McInerney, & Watkins, 2013) than that in the West. As suggested by Urdan and Maehr (1995), working for the social approval from authority figures does not carry the same meanings for people with different self-construals. People with independent self-construal focus on individual accomplishment; thus, working for the social approval from authority figures may represent a desire to demonstrate their ability to authority figures. It is akin to performance-oriented motivation. In contrast, people with interdependent self-construal focus on collec-

tive outcome more than self-interest; thus, working for the social approval from authority figures may represent a more internally regulated goal that leads to adaptive motivation.

Our research has provided empirical support for the different effects of social goals on motivation for students with different self-construals. In a correlational study (Study 1, Cheng & Lam, 2013), we asked a group of Chinese junior high school students in Hong Kong to report their endorsement of independent self-construal, interdependent self-construal, social goals, and avoidance behaviors such as the use of self-handicapping strategies and the avoidance of help seeking. In our research, social goals were defined as students' desire to gain social approval from authority figures. We found that social goals were associated with more avoidance behaviors from students with independent self-construal but less avoidance behaviors from those with interdependent self-construal. To ascertain the causal relation of these variables, we ran an experiment that involved another group of Chinese junior high school students in Hong Kong (Study 2, Cheng & Lam, 2013). We manipulated both social goals and self-construal in authentic classrooms. A 2 (independent self-construal vs. interdependent self-construal) × 2 (social goals vs. control) experimental design was adopted. We manipulated the students' self-construal by a priming procedure that involved reading passages advocating independence or interdependence. As for the manipulation of social goals, students in the social goal condition were asked to carry out an English task for the social approval of their teachers. They were encouraged to do the task well so that their English teachers would receive a good teaching evaluation. Those in the control condition were just told that the task was used to get a general picture of students' ability. We provided failure feedback to all students after they had completed the task. The dependent variable was students' willingness to take a course to improve their performance on the task after failure. We found that social goals yielded lower willingness to improve after failure for students with independent self-construal but higher willingness to improve after failure for students with interdependent self-construal. The two studies converge to deliver a clear message that social goals are associated with maladaptive motivation outcomes for students with independent self-construal but adaptive motivation outcomes for students with interdependent self-construal.

To understand more about the psychological mechanism underlying the different effects of social goals for people with different self-construals, we included in the experimental study an item to check whether students had adopted or internalized the social goals as manipulated. We asked students to indicate how much they agreed with the statement that they worked to get a good result for their English teachers. Interestingly, students with interdependent self-construal reported significantly higher level of agreement with the statement than those with independent self-construal. The result illustrates that working for social approval from their teacher carries different meanings for students with different self-construals. All students in the social goal condition knew that the purpose of the task was to evaluate the teaching quality of their teachers. However, only those with interdependent self-construal agreed that they worked for their teachers. Those with independent self-construal did not appear to work for their teachers even when social goals were

manipulated. It seems that social goals are internally regulated goals leading to adaptive motivation for students with interdependent self-construal. In contrast, social goals are ego-involved goals with a need to demonstrate performance for students with independent self-construal.

In a seminal review of East–West cultural differences, Markus and Kitayama (1991) pointed out that Westerners from individualistic cultures tend to have independent self-construal, while Easterners from collectivistic cultures tend to have interdependent self-construal. Therefore, it is reasonable to speculate that social goals would have different implications for people from these two cultures. To test this speculation, we replicated Study 2 of Cheng and Lam (2013) in a cross-cultural context. A group of Chinese and Caucasian high school students were assigned randomly to either a condition with social goals or a condition without social goals (Cheng & Lam, 2009). Consistent with the previous findings, we found that having social goals resulted in a lower tendency to improve after failure experience for Caucasian but not for Chinese students.

The above studies show that social goals have different meanings and functions, leading to different motivation outcomes, for people with different self-construals or from different cultural backgrounds. Nevertheless, it is noteworthy that there were individual differences within the same cultural group. Although the Chinese students tended to have interdependent self-construal, there were a considerable number who had endorsed independent self-construal (Study 1, Cheng & Lam, 2013). The implications of social goals for them may have been similar to those for Caucasian students. In addition, when Chinese students were primed with independent self-construal, social goals had similar effects on them as on Caucasian students (Study 2, Cheng & Lam, 2013). Self-construal as an individual variable and culture as a contextual variable moderate the effect of social goals on motivation similarly. The similarities of psychological processes despite the cultural differences are thought provoking.

Teacher Controlling Behaviors and Chinese Learner Motivation

Chinese Classroom Paradox

Social goals are not the only psychological construct that carries different meanings for Chinese learners. Teacher controlling behaviors are another intriguing example. The different meanings of this construct are pertinent to the Chinese classroom paradox identified by Watkins and Biggs (2001). In the West, many studies have shown that autonomy-supportive and controlling practices in classrooms have contrasting effects on motivation outcomes (e.g., Roth, Assor, Kanat-Maymon, & Kaplan, 2007; Skinner & Belmont, 1993). Autonomy-supportive practices, such as providing choices, acknowledging what students want, and allowing time for

students (Reeve & Jang, 2006), have been shown to be associated with autonomous motivation which in turn leads to desirable learning outcomes (e.g., school engagement, conceptual understanding, and academic success). In contrast, controlling practices, such as putting pressure on students (Deci & Ryan, 1987), having external evaluations (Reeve & Jang, 2006), and demanding conformity (Chirkov & Ryan, 2001), diminish motivation and lead to undesirable learning outcomes (e.g., dropping out, lack of motivation, and poor academic performance). Despite this strong evidence, Watkins and Biggs (2001) point out that Chinese classrooms present a bewildering paradox for the claim that autonomy facilitates learning.

Chinese teachers have been described as controlling (Ginsberg, 1992; Rao, 2006; Tobin, Wu, & Davidson, 1989), but Chinese students do not have poor academic performance in international comparisons. In fact, according to the most recent results of the Program for International Student Assessment (2013), students from Shanghai, Hong Kong, and Singapore ranked top three among 65 countries or regions in all three subjects being assessed: Reading, Science, and Mathematics. Classrooms in these three cities are typical Chinese classrooms of Confucian heritage culture, where teachers appear to be controlling. The claim that autonomy motivates learning does not seem to apply to Chinese learners. Nevertheless, we cannot agree that Chinese learners do not need autonomy. As Chinese learners ourselves, our personal experiences inform us that autonomy is still important in our learning motivation. We suspect that the key to this Chinese classroom paradox may lie in the different meanings students assigned to the "controlling behaviors" of their teachers. How students interpret the behaviors of their teachers is affected by their cultural background as well as their relationship with their teachers. Student perceptions may account for the differences of achievement motivation in different cultural groups and students with different relationships with their teachers. We tested the above hunches in a cross-cultural study with samples of Chinese and American fifth graders (Zhou, Lam, & Chan, 2012).

Student Perceptions and Motivation

We invited the Chinese and American fifth graders to complete a questionnaire. We presented them with some scenarios of controlling behaviors of teachers, e.g., a teacher asking a student to stay after school to complete assignments that had not been submitted on time. We asked the students how they would feel if their teachers acted in the same manner. They indicated the extent to which they agreed that the following 12 emotions could describe their feelings: loved, controlled, looked after, warm, hurt, angry, manipulated, protected, mad, cared for, sad, and grateful. Results of factor analysis indicated that these 12 emotions could fall into two dimensions: love/care and control/hurt. We found that Chinese and American students assigned different affective meanings to the same teacher controlling behaviors. American students felt controlled or hurt more than Chinese students. In addition, we also found that how students perceived teacher controlling behaviors depended on their

relationship with their teachers. Disregarding cultural background, students with a good relationship with their teachers had less negative feelings and more positive feelings about the controlling behaviors of their teachers than their counterparts who had a lukewarm relationship with their teachers.

To test whether students' feelings about being controlled can explain the differences in motivation between the two cultural groups, we ran a mediation analysis. We found that American students felt more controlled by their teachers and in turn reported being less motivated in their teachers' class. In contrast, Chinese students felt less controlled by their teachers and in turn reported being more motivated in their teachers' class. We ran another mediation analysis to test whether the feeling of being controlled can explain the association between teacher–student relationship and student motivation. The results indicated that the feeling of being controlled accounted for the effect of the teacher–student relationship on student motivation. Disregarding culture, the better the students' relationship with their teachers, the less they felt that their teachers were controlling and in turn reported being more motivated in their teachers' class.

Whether teachers are controlling or not is in the eye of the beholder. The perception depends on culture as well as the quality of the teacher–student relationship. In our study, Chinese students reported feeling less controlled than their American counterparts for the same controlling behaviors of their teachers. Such differences can be attributed to the internalization of cultural values, giving different emphases to autonomy in collectivistic and individualistic culture, respectively. With the influence of Confucianism, Chinese people highly value filial piety, hard work, and education. Chinese students are expected to accept the demands their teachers make of them. When they have integrated the external regulations set by their teachers into their autonomous self-regulation, they tend not to perceive their teachers' behaviors as controlling. Unlike Chinese culture that emphasizes compliance and conformity, American culture values independence and autonomy. American students may not as readily accept the demands of their teachers as the Chinese students do. As a result, they may report stronger feelings of being controlled when their teachers make demands on them.

It is noteworthy that this study did not only reveal cultural differences but also similarities in the psychological processes of learning motivation. On the one hand, American and Chinese students had different perceptions of the same teacher behaviors, and these perceptions played a pivotal role in their learning motivation. On the other hand, disregarding cultural background, students with a good relationship with their teachers tended to perceive the teacher behaviors as less controlling and in turn were more motivated in their teachers' class than their counterparts who had a lukewarm relationship with their teachers. This was so for both American and Chinese students. A sense of being cared for and connected with the other is a universal facilitator for internalization (Ryan & Deci, 2000). A better relationship with teachers can help students identify with their teachers. As a result, the students are more willing to internalize the values and beliefs of their teachers. This mechanism seems to be culturally universal.

Success/Failure Experiences and Chinese Learner Motivation

In our search for cultural differences and similarities in the psychological processes of motivation, we came across another intriguing phenomenon. It is related to the motivation outcomes of success and failure experiences. In the Western literature of educational psychology, success/failure feedback is found to be significantly related to self-efficacy (Schunk, 1994), self-esteem (Koestner, Zuckerman, & Koestner, 1987) and helpless reactions (Kamins & Dweck, 1999). Many guidebooks for educators or parents advocate providing successful learning experiences to children. For instance, teachers are encouraged to assign manageable tasks to their students so that they can experience success and receive positive feedback on their performance.

Nevertheless, this advocacy may not work equally well for everyone. In a meta-analysis, Kluger and DeNisi (1996) found it difficult to conclude that success experience is motivating and failure experience is de-motivating. They speculate that some contextual and individual variables might moderate the motivation consequences of success and failure experiences. Recent studies with cross-cultural samples (e.g., Heine et al., 2001; Watkins et al., 2003) and samples with different regulatory focuses (e.g., Idson & Higgins, 2000) provide empirical support for their speculation. Whether success is motivating or not depends on the cultural background and regulatory focus of the students. Students from a different cultural background or with different regulatory focuses do not differ in their motivation level. Instead, they differ in their *responses* to success/failure experiences.

Cultural Differences in the Responses to Success/Failure

Heine et al. (2001) conducted several experiments to compare the different motivation responses of Caucasian and East Asian college students upon receiving success/failure feedback. When receiving success feedback, Caucasian students were more persistent and also performed better than their East Asian counterparts. Conversely, East Asian students were more motivated after failure feedback. Heine et al. attributed this cross-cultural phenomenon to the meaning of utility of effort. East Asians, who are more likely to believe in the incremental (changeable) feature of abilities, view failure as a chance to improve in future tasks and thus are more motivated after failure. Conversely, Caucasians are less motivated in the face of failure as they believe that abilities are relatively fixed and their performance would not change in the future.

One of our studies (Shu & Lam, 2011a) suggested another possible explanation for this cross-cultural phenomenon. By extending Heine et al.'s (2001) work, we had our participants engaged in positive or negative self-evaluation after learning that they had succeeded or failed on a task. We recruited Caucasian and Chinese college students to participate in a visual search test. After receiving success/failure feedback, they engaged in a self-evaluation process to reflect on and write down

their personal strengths or weaknesses that were likely to affect their performance. Unlike their Caucasian counterparts, the Chinese students in our study were more motivated after failure. They were motivated to work after being prompted to provide a negative self-evaluation. These intriguing findings challenged the traditional Western literature on the importance of maintaining a positive self-view. Negative self-view is not necessarily de-motivating for students from the Chinese culture. The role of culture cannot be neglected.

Regulatory Focus and the Responses to Success/Failure

In addition to cultural differences, some individual differences may have a similar moderating effect on motivation. One of these individual differences is regulatory focus. According to Higgins (2000), there are two independent types of regulatory focus systems: the *promotion focus* and the *prevention focus* systems. The promotion focus system includes traits or goals that people aspire to attain, whereas the prevention focus system includes traits or goals that people think they should have (Idson & Higgins, 2000). Past research has found that people from different cultural groups score differently for these two types of regulatory systems (Lee, Aaker, & Gardner, 2000). In particular, people from Western cultures (e.g., American) have a relatively higher promotion focus, whereas people from East Asian cultures (e.g., Chinese) have a relatively higher prevention focus. Thus, it is possible for people with promotion focus to have similar motivation responses to success and failure experience as the people from Western culture. It is also possible for people with prevention focus to have similar motivation responses to success and failure experience as the people from East Asian culture.

We tested the different motivation responses by people with different levels of promotion focus and prevention focus in the face of success or failure experience (Shu & Lam, 2011b). Adopting a new conceptualization of the regulatory focus theory, we derived four groups of people that differ in their levels of promotion and prevention focuses: high in promotion but low in prevention focus (*predominant promotion focus* group), low in promotion but high in prevention focus (*predominant prevention focus* group), high in both focuses (*high-high* group), and low in both focuses (*low-low* group). We tested the motivation responses of these four groups following success/failure experiences. We invited Chinese college students to participate in this study and asked them to take an alleged written aptitude test. We provided success or failure feedback to them and measured their motivation responses. Specifically, we were interested in how motivated and persistent they were in a task after failure or success experiences.

This study replicated Idson and Higgins' (2000) findings in which students in the *predominant promotion focus* group were more motivated and persistent than their counterparts in the *predominant prevention focus* group after success experience. Conversely, those with a predominant prevention focus were more motivated and persistent after failure. Unexpectedly, the *low-low* and *high-high* groups were not the most nor the least motivated ones. Their performance was a kind of mediocre

one among the four groups. We suspected that this may be due to the counteracting effect of emotional consequences brought about by the two regulatory systems. For example, while success experience will bring about joy in the promotion system, it brings calmness in the prevention system too. In this case, students in the *high-high* group receiving success feedback may simultaneously experience these two emotional states. The motivational benefits (e.g., arousal, pleasure) come from joy but may be tuned down by calmness. Similarly, vigilance brought about by failure experience in the prevention system may also be tuned down by sadness in the promotion system. These emotional states from the two regulatory systems may minimize the motivational benefits of each predominant system.

Our research in the responses to success/failure highlights the importance of both cultural and individual differences in motivation. Within the same culture, some individual differences, such as regulatory focus, may produce similar motivation consequences as what cultural differences may elicit.

Conclusion

We agree with Watkins and his colleagues (e.g., Watkins & Biggs, 1996; Watkins McInerney, Lee, Akande, et al., 2002) that the Western models of motivation may not be appropriate for Chinese students due to the differences in cultural tradition and heritage. As demonstrated in our research program, the meanings of social goals, teacher controlling behaviors, and success and failure experiences appear to be different for students with different cultural backgrounds, thus leading to different motivation outcomes. Nevertheless, our research program has also revealed psychological processes that go beyond culture. For example, the teacher–student relationship plays an important role in student motivation regardless of culture. On the one hand, we agree that researchers should continue to look for cultural differences in student achievement motivation. On the other hand, they should also look for deeper psychological similarities that may lie underneath the ostensible cross-cultural differences. The etic approach is still needed. Pike (1967), the scientist who coined the terms etic and emic approaches, once likened the combination of the two approaches to binoculars. When both approaches are used together, we are able to see farther and clearer. An integration of the etic and emic approaches will better equip us to tease out what is universal and what is not and to delineate their impact on the existing body of knowledge and their implications for educational practices for both Chinese and non-Chinese learners.

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Chapter 23
The Conjoint Influence of Achievement Goals on Filipino Students' Sense of Self, Facilitating Conditions, and School Outcomes: A Personal Investment Theory Analysis

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Abstract Majority of studies that examined achievement goals utilized a variable-level approach that looked at how students' goals influenced school outcomes. This approach ignored the possible constellation of traits within each student. The use of variable-centered approach classifies students into homogenous groups with similar profile across various dimensions of goals. From the framework of Personal Investment Theory (Maehr, 1984), the aim of this study was to investigate how different goal clusters, each characterized by distinct goal profile, relate to sense of self, facilitating conditions, engagement, and achievement. Four empirically derived achievement goal profiles emerged through cluster analysis: predominantly extrinsic ($n=143$, 8.44 %), high mastery-performance-extrinsic ($n=598$, 35.30 %), high multiple goals ($n=748$, 44.16 %), and low goals ($n=205$, 12.10 %). These clusters were compared in terms of sense of self (sense of purpose, self-reliance, positive self-concept, and negative self-concept), learning engagement (university intention, school valuing, and affect to school), facilitating conditions (teacher support, parent support, peer help, negative parent influence, negative peer influence), and achievement (chemistry achievement). MANOVA results indicated that differences exist among four clusters. Post hoc analyses indicated that the most favorable outcomes were associated with two clusters: the high multiple goals and high mastery-performance-extrinsic goal profile. Findings are discussed in relation to improving academic engagement and achievement of Filipino students.

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The achievement goal construct has received the special attention in psychological research. The plethora of empirical studies written on this construct demonstrates the prominence of achievement goal theory in understanding students' motivation (e.g., Elliot, 2005). Given that people from different cultures are motivated by differential combination of goals in schooling concurrently (Pintrich & Garcia, 1991), some researchers have recently utilized person-centered analysis in understanding how a conglomeration of goals operate in concert to influence achievement outcomes (e.g., Dela Rosa & Bernardo, 2013a, 2013b; Luo, Paris, Hogan, & Luo, 2011). This is in line with the assertion that varying degree of goals (i.e., high mastery, moderate performance) will develop a distinct profile for each student which will create differential implication for learning outcomes.

Achievement goals represent the reasons why students engage in competence-relevant activities in various achievement contexts (Ames, 1992). Earlier, the theory postulates that students bring different two kinds of goals into the classrooms which are referred to as the dichotomous achievement goal: mastery goals (self-referenced goal) and performance goals (other referenced or normative; Dweck & Leggett, 1988). Later, the trichotomous achievement goal theory was conceptualized, and it divided performance goals into performance approach and performance avoidance goals (Elliot & Church, 1997; Elliot & Harackiewicz, 1996). Recently, the proposal for a 2×2 achievement goal framework consisting of four goal orientations emerged: mastery approach, mastery avoidance, performance approach, and performance avoidance (Elliot, 1999; Elliot & McGregor, 2001). Despite these interesting advancements in achievement goal theory, it appears that there is no definitive answer on whether the adoption of a particular goal (mastery goal perspective) or a combination of goals (multiple goal perspective) is more beneficial for students.

Multiple goal perspective assumes that performance approach goals are adaptive especially when combined with mastery goals, and this goal combination is precursor of best learning outcomes (Pintrich, 2000). While it is recognized by some Western researchers that mastery and performance goals have a strong individualist perspective (Maehr, 1984; Urdan & Maehr, 1995), there is reason to believe that multiple goal is more salient to collectivist culture. This is primarily because in the collectivist Asian setting, relationally based and group-oriented goals are more pronounced unlike individualistic Western contexts where personally chosen goals are valued (Kitayama & Uchida, 2004; Markus & Kitayama, 1991).

The multiple goals perspective has been initially explored involving Asian students (e.g., Singaporeans, Filipinos, Chinese). In the Philippines, the study of Dela Rosa and Bernardo (2013a) reported that the group of students endorsing multiple goals (high mastery, high performance goals) demonstrated the most favorable learning strategies and emotions (e.g., enjoyment of learning). The study of Luo et al. (2011) involving Singaporean students showed that self-efficacy, subjective task values, class engagement, homework engagement, time management, and meta-cognitive self-regulation are associated with two clusters: approach oriented

(high mastery and performance approach/low performance avoidance) and success oriented (moderate mastery/high performance approach and avoidance). In the Hong Kong context, a related study was conducted by Watkins and Hattie (2012), and their findings demonstrated that the group high in mastery goal, performance goal, and social goal had higher sense of purpose. In addition, the group high in mastery and social goal had higher self-reliance and intellectual self. Taken together, it appears that the goals endorsed by these Asian students are largely supportive of relative advantage of embracing multiple goals simultaneously in achieving optimal learning outcomes. This is in line with the recent theorizing of how achievement goals can be combined to attain optimal achievement gains (Pastor, Barron, Miller, & Davis, 2007; Wang, Biddle, & Elliot, 2007).

Despite the significant advancement in understanding how combination of goals relates to achievement, answers to the following questions are needed: Can goal profile adequately explain differences in how students feel about themselves? If yes, what goal profile is most adaptive? Can goal profile differentiate the facilitating conditions accorded to students? Which cluster profile is most adaptive in terms of school engagement and achievement? These are important unexplored questions whose answers are expected to illuminate the importance for students' goals for schooling.

Therefore, the purpose of the present research was to address this gap in the literature by complementing the prior work of researchers studying Asian students' achievement goals. To achieve this end, we used a person-centered data analytic approach to identify goal clusters or profiles pertaining to achievement goals of sample Filipino students. Within the framework of Personal Investment Theory (PIT; Maehr, 1984; Maehr & Braskamp, 1986), we examined the heterogeneity of our sample in terms of combination of achievement goals (mastery goal, performance goal, social goal, and extrinsic goal). Further, we clarified how the different configurations relate to sense of self (sense of purpose, self-reliance, positive self-concept, negative self-concept), school engagement (school valuing, intention for further education, affect to school), and achievement (science achievement). Thus, we are convinced that our study contributes to a growing body of research investigating the role of achievement goals in understanding the differential engagement and achievement of students through person-centered analytic procedure. To our knowledge, this study is the first to attempt to use person-centered analysis in understanding how goal profiles can potentially explain differences in PIT variables.

Cultural Context of Achievement Goals

Empirical studies suggest the idea that achievement goal construct operates differentially relative to culture, and there are clear motivational differences among individuals from various cultural background (Chang & Wong, 2008). Given this, there is a need to look at achievement goals from cultural lens suggesting that this is not a universal construct and therefore provide differential effects to groups. Researchers found explicit evidence that Asian students (e.g., Chinese, Indonesians, Filipinos,

Japanese) endorse goal patterns which were different from North American students (e.g., Ng, 2000; Hau & Ho, 2008).

Specific to Asian settings, existing literature demonstrates the positive association of mastery goal and performance goal (e.g., Bernardo, 2008; Chan & Lai, 2007) – a consistent finding which cross-cultural researchers claim to be reflective of Asian goal pursuit. The work of Bernardo (2008) involving Filipino students provided explanation that the seemingly similar endorsement of mastery and performance goals is linked to parent-oriented achievement motivation. In contrary, Western literature, mastery, and performance goals operate as distinct constructs where some researchers found these goals negatively associated (e.g., Rhodewalt, 1994) or uncorrelated (e.g., Pekrun, Elliot, & Maier, 2006). These contrasting results point to the east-west differences in motivation suggesting that Western constructs of academic motivation do not operate in similar fashion when compared to Asian contexts, which can be primordially explained by cultural differences. In sum, the differences in achievement motivation are shaped by culture. That is, Asian students are believed to embrace goals consistent with their collectivistic orientations and interdependent self-construals with high compliance to authority and conformity to societal standards (Hofstede, 1983; Li, 2002; Markus & Kitayama, 2010).

Personal Investment Theory (PIT)

PIT is a social-cognitive theory whose central argument proposes that the subjective meaning students across culture give to school-related activities is largely dependent on the interplay of three components of meaning: personal incentives, facilitating conditions, and sense of self (Maehr & Braskamp, 1986; Maehr & McInerney, 2004). In other words, the personal investment students' give to their schooling may vary according to situational or contextual factors. That is, how they perceive the external support given to them (i.e., facilitating conditions), their perception of oneself (i.e., sense of self), and the goals they have for schooling (achievement goals or personal incentives) define action possibilities which may be indicated by their school engagement and eventual achievement. One of the aims of this theory is to understand how the three components of meaning relate to students' achievement and engagement (school valuing, affect to school, and university intention) across culture making this theory relevant to the fields of education and cross-cultural psychology.

In the recent discussion of achievement goals, achievement goal theory has been criticized for its seemingly individualistic orientation of achievement motivation. Some cross-cultural researchers assert the need for socially oriented types of goals in addition to individualistic goal types (e.g., Dowson & McInerney, 2003; Urdan & Maehr, 1995). To address this limitation, McInerney and his colleagues (Maehr & McInerney, 2004; McInerney & Ali, 2006; McInerney & Liem, 2009) conceptualized multidimensional model of motivational goals which are believed to be relevant to both Western and Asian students. Specifically the goals explored in this study follow the proposal of Mclnerney, Yeung, and Mclnerney (2001) where goals are indexed by the following: mastery goal, performance goal, social goal, and extrinsic goal.

The use of this personal investment framework is worthwhile in advancing our understanding of students' motivation for a number of reasons. First, PIT specifically includes social goal (affiliation and social concern) and extrinsic goal (praise and token rewards) in the conceptualization of motivational dimensions. There is an invitation to expand the repertoire of goals embrace by students (e.g., King, Mclnerney, & Watkins, 2010) which maybe in response to an assertion not to oversimplify motivational complexity (Eccles, Wigfield, & Schiefele, 1998). The inclusion of social goal – a goal that is less prominent in Western research but is alleged to be salient among Asians – makes it possible for cross-cultural researchers to examine the wide range of students' goals particularly in collectivist settings (e.g., King, Ganotice, & Watkins, 2014; King & Watkins, 2010). Second, the use of this framework enables us to understand the role of facilitating conditions or social support and the perception of oneself in the promotion of students' learning engagement and achievement.

The Present Study

In this research, we aimed to extend previous work on students' achievement goal pursuits by elucidating the importance of taking into account the concurrent influence of various achievement goals vis-à-vis sense of self, facilitating conditions, engagement, and achievement. The primary objectives of the present study were twofold. Specifically, we want to identify the achievement goal profiles involving a sample of Filipino adolescent students in the Philippines. Furthermore, we also want to compare the goal profiles in terms of various variables definitive to PIT. These include sense of self, facilitating conditions, school engagement, and achievement. Doing this will allow us to identify which goal profile represents the most positive achievement as maybe indexed by positive sense of self, supportive facilitating condition received, ideal school engagement, and proximal academic achievement.

To summarize, this study was conceptualized to answer the following questions:

1. What achievement goal profile can be identified among sample of Filipino adolescent students?
2. Can these cluster profiles adequately explain differences in their sense of self, facilitating conditions, and school outcomes (engagement and achievement)?

Method

Participants

The participants of this study were 1694 third year high school students recruited from secondary schools in Metro Manila and other provinces in the Philippines. The mean age of participants was 14.54 years (*SD* = .95). Of these participants, 695 were males, and 999 were females.

Instruments

The study utilized the newly validated Filipino versions of three affective instruments (Inventory of School Motivation (ISM), Sense of Self Scale (SOS), and Facilitating Conditions Questionnaire (FCQ)) and a cognitive instrument (First Quarter Chemistry Achievement Test (FQCAT)). We used the Filipino versions of the said instruments (see Ganotice & Bernardo, 2010; Ganotice, Bernardo, & King, 2012, 2013).

Achievement Goals Achievement goals are theorized as purposes students have for pursuing a learning task (e.g., Pintrich, 2000). The Inventory of School Motivation (ISM; McInerney et al., 2001) is designed to describe motivational characteristics of individuals and groups. Within framework of PIT, these goals are operationalized in terms of the following goals: mastery goal (e.g., "The more interesting the schoolwork the harder I try"), performance goal (e.g., "Winning is important to me"), social goal (e.g., "I work hard at school so that I will be put in charge of a group"), and extrinsic goal (e.g., "Praise from my teachers for my good schoolwork is important to me").

Sense of Self Maehr (1984) used the term "sense of self" to refer to the relatively organized collections of perceptions, beliefs, and feelings related to who one is. Sense of self is operationalized to include the following subscales: sense of purpose, self-reliance, and self-concept. *Sense of purpose* refers to which a student values school for the future (e.g., "I try hard to do well at school so I can get a good job when I leave"). *Self-reliance* refers to the degree to which a student is self-reliant and confident within academic settings (e.g., "I often try new things on my own"). S*elf-concept* refers to degree to which a student holds feelings about his/her general intellectual ability in school. This dimension has two subscales: positive self-concept (e.g., "I think I am as good as everybody else at school") and negative self-concept ("I often make mistakes at school").

Responses on the three affective measures were made on a 5-point anchored scale where participants just selected/marked their response from the response scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). In each of the factors, a higher total score indicates the presence of the underlying construct to a greater extent. Items were arranged in cyclic order to refrain from potential "set effects."

Academic Engagement We measured academic engagement using various indicators drawn from the relevant subscales of the FCQ: *university intention* which refers to the degree to which students intend to pursue university education (e.g., "Most people who are important to me think that I should go to college or university"), *school valuing* which pertains to the importance students attach to schooling (e.g., "People who have a good schooling get more out of life than ones who don't"), and *affect toward school* which pertains to how much students like being in school (e.g., "I like working at school").

Science Achievement The First Quarter Chemistry Achievement Test (FQCAT) is a 75-item multiple choice test that was developed by the first author and was used as an objective measure of science achievement. We used a chemistry test to index

achievement because all Filipino students are mandated to take a chemistry course in their third year of high school. All items in the FQCAT were reviewed by two experienced chemistry teachers for their alignment with the high school chemistry curriculum. The first author developed a table of specification (TOS; Anderson & Krathwohl, 2001) which detailed the achievement domains being measured by the FQCAT.

Statistical Analysis

Cluster analysis, otherwise known as similarities-of-features procedure, was used to combine cases into groups on the basis of participants' (cases) scores on a given set of variables (George & Mallery, 2009). A two-step procedure was used to identify distinct goal clusters (Hair & Black, 2004). First, to examine whether distinct goal profiles exist from our data, the four achievement goals (mastery goal, performance goal, social goal, and extrinsic goal) were subjected to hierarchical cluster analysis. We performed Ward's method with an agglomerative (i.e., bottom-up) schedule to initially clarify the number of possible solutions. Second, we employed a K-means clustering as the next step. Specifically, in K-means clustering, we used as the starting points the number of clusters and their respective centroids that we obtained during Ward's hierarchical clustering to assign the subjects to the clusters; the assignment was made on the basis of the distances (i.e., similarity measures) of the subjects from the cluster centers that we a priori defined during hierarchical clustering. In determining the number of clusters, we considered theoretical and substantive interpretability and parsimony as well as cell sizes, which should be large enough to warrant generalizability.

One-way multivariate analysis of variance (one-way MANOVA) was used to determine whether there were any differences between independent groups on more than one continuous dependent variable (facilitating conditions, sense of self, engagement and achievement). As a follow-up test to the MANOVA, a series of ANOVAs with Scheffe *post hoc* comparison were then used to identify where statistically significant differences were present among clusters. The effect size of the independent variable (cluster membership) on each of the dependent variable was also reported by means of eta square values (η^2), which indicate the proportion of variance of the dependent variable accounted for the differences among clusters.

Results

In Table 23.1, we present the means, standard deviations, reliability coefficients, and correlations among the study variables. Internal consistency for each scale was established by calculating Cronbach's alpha coefficients. The internal consistencies of the scales were generally acceptable: achievement goals (.85 to .97), sense of self (.90 to .97), facilitating conditions (.87 to .96), and engagement (from .57 to .81).

Table 23.1 Descriptive statistics and correlation coefficients between the 17 measured variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Achievement goals																	
1. Mastery goal	—	.89**	.49**	.73**	.91**	.90**	−.77**	.85**	.23**	.20**	−.01	.72**	.94**	.83**	−.86**	−.78**	.56**
2. Performance goal		—	.43**	.68**	.89**	.90**	−.78**	.81**	.18**	.14**	−.04	.64**	.91**	.75**	−.86**	−.75**	.47**
3. Social goal			—	.52**	.44**	.43**	−.40**	.46**	.25**	.29**	.16**	.53**	.44**	.54**	−.39**	−.41**	.31**
4. Extrinsic goal				—	.69**	.71**	−.61**	.64**	.25**	.23**	−.04	.66**	.72**	.72**	−.68**	−.65**	.52**
Sense of self																	
5. Sense of purpose					—	.91**	−.76**	.84**	.20**	.15**	−.07	.68**	.91**	.80**	−.87**	−.78**	.54**
6. Self-reliance						—	−.77**	.83**	.22**	.18**	−.04	.70**	.92**	.80**	−.86**	−.78**	.56**
7. Negative self-concept							—	−.71**	−.18**	−.17**	−.06	−.58**	−.78**	−.64**	.70**	.61**	−.37**
8. Positive self-concept								—	.21**	.18**	.01	.70**	.84**	.76**	−.78**	−.73**	.54**
School engagement																	
9. University intention									—	.61**	.20**	.27**	.22**	.28**	−.28**	−.32**	.31**
10. School valuing										—	.44**	.26**	.17**	.22**	−.21**	−.25**	.18**
11. Affect to school											—	.05	−.04	−.03	.08**	.07*	−.16**
Facilitating conditions																	
12. Teacher support												—	.70**	.89**	−.64**	−.67**	.62**
13. Parent support													—	.83**	−.87**	−.78**	.55**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14. Peer help														—	-.75**	-.75**	.66**
15. Negative peer influence															—	.81**	-.59**
16. Negative parent influence																—	-.63**
Achievement																	
17. Chemistry achievement																	—
Mean	4.16	3.76	4.07	4.08	4.19	3.91	2.37	4.08	4.63	4.53	3.95	3.92	4.02	4.02	2.17	1.402	37.13
SD	.90	1.08	.65	.90	1.08	1.11	1.17	.85	.58	.48	.75	.85	1.15	.91	1.38	.27	13.67
Cronbach's alpha	.95	.97	.85	.95	.97	.96	.94	.90	.81	.78	.57	.89	.96	.87	.95	.95	—

Note. Bolded means are the highest ranked means; * $p < .001$, ** $p < .0001$

Table 23.2 Frequency and means for each goal cluster

Goals	Cluster			
	Cluster 1, predominantly extrinsic (PE)	Cluster 2, high mastery, performance, and extrinsic (High MPE)	Cluster 3, high multiple goals (High MG)	Cluster 4, low goals (low goals)
Mastery goals	2.56	4.40	4.74	2.49
Performance goals	1.75	4.21	4.36	1.74
Social goals	3.86	3.77	4.56	3.39
Extrinsic goals	4.02	4.15	4.63	2.00
Total	143 (8.44 %)	598 (35.30 %)	748 (44.16 %)	205 (12.10 %)
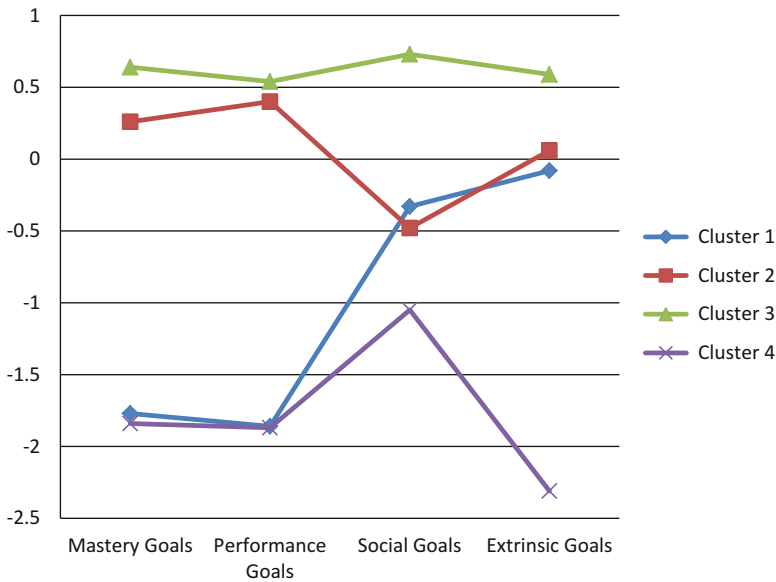
Fig. 23.1 Participants' standardized mean scores on Inventory of School Motivation (ISM) as a function of group membership. *Cluster 1ss*, predominantly extrinsic (PE); *Cluster 2*, high mastery, performance, and extrinsic (High MPE); *Cluster 3*, high multiple goals (High MG); *Cluster 4*, low goals (low goals)

Derivation of Clusters of Goal Profiles

Through K-means clustering, we derived four distinct goal profiles (refer to Table 23.2). The 4-cluster solution appears on Fig. 23.1. Cluster 1 *predominantly extrinsic* is indicated by high mean score on extrinsic goal ($M = 4.02$). This cluster, composed of 143students (8.44 %), was the smallest of four groups formed through cluster

analysis (Table 23.2). Cluster 2 is a group of students who registered high mean scores on mastery goal, performance goal, and extrinsic goal but were about average in social goal. This group was labeled as *high mastery-performance-extrinsic goals* (High MPE). This cluster profile is the second largest group composed of 598 students (35.30 %). The largest group is Cluster 3 composed of 748 students (44.16 %) labeled as *high multiple goals* (High MG) because of the highest mean score registered across the four types of goals under PIT. Cluster 4 is labeled as *low goals* (LG) because they obtained the lowest mean scores of the four goal types. This cluster is the third biggest cluster composed of 205 (12.10 %) students.

Differences Among Clusters of Goal Profiles

We performed three one-way MANOVAs to examine cluster differences on sense of self, facilitating conditions, and school outcomes. A first one-way MANOVA was performed with cluster as the independent variable and the four subscales of Sense of Self Scale as the dependent variables (sense of purpose, self-reliance, negative self-concept, and positive self-concept). Results revealed significant differences among the four clusters [Wilks lambda = 0.07, F (12, 1682) = 659.96, $p < 0.001$]. Results from follow-up ANOVA suggest significant differences among the four clusters on subscales of SOS. Participants from Cluster 2 (High MPE) and Cluster 3 (High MG) indicated significantly higher degrees of sense of purpose, self-reliance, and positive self-concept than Cluster 1 (PE) and Cluster 4 (LG). However, it terms of negative self-concept, Clusters 1 (PE) and 4 (LG) were relatively higher than Clusters 2 (High MPE) and 3 (High MG).

The second one-way MANOVA was conducted with cluster profiles as independent variables and facilitating conditions as indexed by teacher support, parent support, peer help, negative peer influence, and negative parental influence, as the dependent variables. Our results suggest significant differences among the four clusters on facilitating conditions [Wilk's lambda = 0.06, F (12, 1682) = 563.60, $p < 0.001$]. Univariate analyses demonstrated that those from Cluster 2 (High MPE) and Cluster 3 (High MG) reported significantly higher perception of support from sources of facilitating conditions: teacher support, parent support, and peer help. Conversely, those from Cluster 1, predominantly extrinsic (PE), and Cluster 4, low goals (LG), reported higher scores on two indices of negative facilitating conditions: negative peer influence and negative parental influence (Table 23.3).

We performed the third one-way MANOVA with the four cluster profiles as independent variables and the four school engagement and achievement variables as dependent variables: university intention, school valuing, affect to school, and chemistry achievement. Our results suggest significant differences among the four clusters on school outcomes [Wilk's lambda = 0.59, F (12, 4463) = 80.402, $p < 0.001$]. The results of univariate analyses indicated that those from Cluster 3 (High MG) indicated higher university intention, school valuing, and chemistry achievement than any other cluster profiles.

Table 23.3 Descriptive statistics of study variables and results of the follow-up univariate tests

	Cluster 1, predominantly extrinsic (PE)		Cluster 2, high mastery, performance, and extrinsic (High MPE)		Cluster 3, high multiple goals (High MG)		Cluster 4, low goals (low goals)		$F_{(5,1688)}$	p	η^2	Post hoc
	M	SD	M	SD	M	SD	M	SD				
Sense of self												
Sense of purpose	2.14	.53	4.60	.33	**4.80**	.23	2.21	.57	4589.46	.000	.89	1 < 2, 3; 2 > 1, 2 < 3; 3 > 1, 2, 4; 4 < 2, 3
Self-reliance	1.93	.52	4.29	.38	**4.56**	.32	1.83	.45	4216.26	.000	.88	1 < 2, 3; 2 > 1, 4; 2 < 3; 3 > 1, 2, 4; 4 < 2, 3
Negative self-concept	3.99	.70	1.97	.81	1.83	.64	**4.36**	.55	1007.46	.000	.64	1 > 2, 3; 1 < 4; 2 < 1, 4; 2 > 3; 3 < 1, 2, 4; 4 > 1, 2, 3
Positive self-concept	2.61	.52	4.31	.39	**4.56**	.40	2.69	.62	1508.36	.000	.73	1 < 2, 3, 4; 2 > 1, 4; 2 < 3; 3 > 1, 2, 4; 4 < 2, 3

Facilitating conditions

Teacher support	3.04	.69	3.89	.57	**4.46**	.53	2.64	.70	648.822	.000	.53	1<2, 3; 1<4 2>1, 4; 2<3 3>1, 2, 4 4<1, 2, 3
Parent support	1.91	.47	4.42	.33	**4.70**	.27	1.84	.45	5897.75	.000	.91	1<2, 3 2<3; 2>2, 4 3>1, 2, 4 4>2, 3
Peer help	2.75	.62	4.09	.53	**4.62**	.42	2.52	.62	1239.041	.000	.68	1<2, 3; 1>4 2>1, 4; 2<3 3>1, 2, 4 4<1, 2, 3
Negative peer influence	4.33	.85	1.97	.96	1.49	.79	**4.52**	.47	1029.411	.000	.64	1>2, 3 2<1, 4; 2>3 3<1, 2, 4 4>2, 3
Negative parental influence	**4.65**	.51	1.67	.67	1.42	.50	4.60	.62	2585.106	.000	.82	1>2, 3 2<1, 4; 2>3 3<1, 2, 4 4>2, 3

(continued)

Table 23.3 (continued)

	Cluster 1, predominantly extrinsic (PE)		Cluster 2, high mastery, performance, and extrinsic (High MPE)		Cluster 3, high multiple goals (High MG)		Cluster 4, low goals (low goals)		$F (5,1688)$	p	η^2	Post hoc
	M	SD	M	SD	M	SD	M	SD				
School outcomes												
University Intention	4.47	.04	4.54	.02	**4.80**	.02	4.36	.03	47.601	.000	.08	1<3; 2<3, 2>4; 3>1, 2, 4; 4<2, 3
School valuing	4.52	.03	4.41	.01	**4.68**	.01	4.33	.03	50.138	.000	.08	1<3, 1>4; 2<3; 3>1, 2, 4; 4<1, 3
Affect to school	**4.17**	.06	3.81	.03	4.01	.02	4.05	.05	14.196	.000	.03	1>2; 2<1, 3, 4; 3>2; 4<2
Chemistry achievement	22.01	7.00	**35.26**	12.44	**45.03**	11.41	24.30	4.69	322.40	.000	.36	1<2, 3; 2<1, 4; 2<3; 3>1, 2, 4; 4<2, 3

Note. Bolded means indicate the two highest means. The critical *p*-values were adjusted using the Bonferroni correction: sense of self =0.0125; facilitating conditions =0.001; school outcomes =0.012

Discussion

This study is the first, to our knowledge, that explored the within-cluster configuration of goals within individuals and clarified its relationship to various variables underpinned by PIT framework. This was examined through the use of cluster analysis where four theoretically interpretable goal profiles were formed: Cluster 1, predominantly extrinsic (PE); Cluster 2, high mastery, performance, and extrinsic (High MPE); Cluster 3, high multiple goals (High MG); and Cluster 4, low goals (LG). These cluster profiles were used to examine differences in PIT variables including sense of self, facilitating conditions, and learning outcomes of Filipino students.

Because we want to understand which goal profile could best illuminate positive sense of self, ideal facilitating conditions, and optimal achievement, we checked the mean scores of each group on variables definitive to Personal Investment Theory. Generally, our results suggest two goal clusters appear to be relatively advantageous: High MPE and High MG. The two most favorable clusters were both "multiple goals" clusters, with the one cluster being "more multiple" than others. These clusters can be characterized as more favorably related to positive sense of self, facilitating conditions, engagement, and achievement. In particular, in terms of sense of self, these cluster profiles have demonstrated healthy perception of oneself as may be shown by strong sense of purpose, self-reliance, and positive self-concept. Interestingly, these clusters indicated that they were accorded support from various sources of facilitating conditions in their schooling: teacher support, parent support, and peer help. As a result, participants from these cluster profiles demonstrated strong university intention and school valuing and demonstrated the highest scores on a chemistry achievement test.

Comparatively, the less favorable or at-risk groups among the four goal profiles are Cluster 1 (PE) and Cluster 4 (LG). In terms of sense of self, while these clusters registered lowest mean scores on positive dimension of sense of self: sense of purpose, self-reliance, and positive self-concept, they reported the higher mean scores on negative self-concept. In the area of facilitating conditions, these cluster profiles reported lowest perception of support from their teachers, parents, and peers in their schooling. In contrast, they registered highest mean scores on two indices of negative facilitating conditions: negative peer influence and negative parental influence.

In sum, specific to the Philippines context, it appears that coexistence of all goals (multiple goals – high in mastery, performance, social and extrinsic goals) or at least coexistence of mastery, performance, and extrinsic goals appears to have strong association with healthy sense of self, positive facilitating conditions, optimal engagement, and achievement. On the opposite, students who had low levels of goal endorsement or who predominantly endorsed extrinsic goals appeared to have more unfavorable outcomes as indicated by high endorsement of negative sense of self, negative facilitating conditions, and low level of learning outcomes. The finding on the negative impact of extrinsic goal on achievement outcomes is in line with existing literature suggesting that this goal negatively impacts achievement (e.g., Ku, Dittmar, & Banerjee, 2014; Wolters, Yu, & Pintrich, 1996). However, it is important

to note that once extrinsic goal is endorsed in concert with other goals, it can result in favorable outcomes. In other words, while the use of extrinsic goals in isolation results in unfavorable outcomes, pattern of results will be different when this goal is used in complementary with mastery goal, performance goal, and social goal. That is, the simultaneous endorsement of multiple goals is important in superior learning outcomes.

Another important result of this investigation relates with social goal – a relatively unexplored goal type which is believed to likely operate in collectivist settings. Previous empirical evidence provides support to the importance of social goal in predicting school outcomes (King et al., 2010, 2014). Perhaps our present study offers an alternative way to see the relative performance of social goal when it coexists with other goal types. Our findings that Cluster 3 (High MG) consistently resulted in better sense of self and more favorable facilitating conditions than Cluster 2 (High MPE) seem to suggest that social goal (the goal that was not highly endorsed by Cluster 2) is an important goal when it coexists with other goal types. However, although social goal is recognized as important in Asian context (e.g., King et al., 2014), we did not find a group of students characterized by predominantly social orientation from our data set. This suggests that among Filipino students, social goal tends to coexist with other achievement goals.

The importance of simultaneous endorsement of the goal model espoused by McInerney and Ali (2006) somehow justifies the inclusion of social goal and extrinsic goals in the array of goals under the framework of PIT. Thus, our findings lend support to the perspective of multiple goals in understanding achievement under the theoretical lens of PIT.

Implications

Our findings underscore the importance of adopting a person-centered approach to achievement goal research in which goal types operate in concert to affect students' sense of self, engagement, and achievement. Previous research has generally adopted a variable-centered approach, which does not explicitly inquire into group differences in array of outcome variables which can illuminate the group which represents the most favorable learning outcomes.

In the light of our findings, we see some important theoretical, methodological, and practical implications. Theoretically and methodologically, findings of this study lend support to multiple goal perspective of Maerh and McInerney's PIT using person-centered approach which can elaborate the methodological position of the theory. This is innovative because it fills the gap on the importance of exploring the coexistence of goals among Filipino adolescent students. Our results suggest that extrinsic goal is not maladaptive when endorsed in harmony with mastery goal, performance goal, and social goal. Recognizing that there is a cluster profile labeled as predominantly extrinsic (PE) leads to important practical implications. The finding that PE cluster profile is associated with less favorable outcomes is alarming.

For academic professionals, this may serve as an invitation to revisit classroom pedagogical practices to identify the potential factors that might have led to the promotion of this goal. While we recognize the popularity of praise, token, and reward as part of teachers' reservoir of teaching practices (Bear, 2013) – and which is most likely to be part of Filipino teachers' motivational strategies – it is important to recognize that these must be used sparingly and in harmony with other classroom activities which target the promotion of other adaptive goals.

Importantly, we acknowledge that it is essential for sources of facilitating conditions to take explicit steps in the promotion of adaptive goals in students' pursuits of schooling. In agreement with assertion that goals are malleable and context dependent (Meece, Anderman, & Anderman, 2006; Urdan, 2004), it entails that it is indispensable on the part of the teachers and parents to promote specific goals to help students become successful learners.

Limitations, Directions for Future Research, and Conclusions

This study had several limitations. First, we only limit achievement goals into mastery goal, performance goal, extrinsic goal, and social goal. Researchers guided by Goal Theory assert that there is avoidance dimension of goals which we failed to take into account. Future research may consider the inclusion of this dimension. We recognized that the clusters we derived depend on the criterion variables that we used which are defined by PIT. Therefore, the inclusion of other goals may result in very different cluster profile (c.f. Dela Rosa & Bernardo, 2013a; Pastor et al., 2007; Wang et al., 2007). Second, our study only identified goal patterns at a particular time point. We deemed it important to understand the trajectories of change in students' achievement goals across goal profiles. This is an opportunity to examine stability of and possible changes in cluster membership across time. Third, we only involved third year high school students; hence, we have no basis to assume that these findings can be generalized to other age groups. It may be interesting to explore the achievement goal profiles of students based on developmental stage or ability groupings. This may verify if the four profiles we identified can be extended to other groups. Fourth, our study did not deal with contextual correlates of multiple goals. It may be important to clarify how differential goal profiles are shaped by contextual structures to inform us how to design learning environments that engender adaptive profile of motivation and achievement (Urdan, 2004). Finally, while there were initial attempts to explore the multiple goals of Asian students through person-centered analysis, what seems apparent is the nonuniformity of goal framework used (e.g., dichotomous, trichotomous, 2×2 goal) in the inquiry of multiple goal structure. As we discussed earlier, the clusters derivatives are dependent on the chosen criterion variables. Existing literature provides evidence that Asian students adopt multiple goals, but the specific goals comprising the multiple goals vary. Future research should try to explore what specific multiple goals characterize Asian students.

These limitations notwithstanding, we are convinced that this study is important because it shed light on the effects of intraindividual achievement goal profile or simultaneous goals profile on school-related variables definitive to PIT. Overall, our results suggest that the optimal combination appears to involve high level of mastery, performance, social, and extrinsic goals at least when the results are seen from the perspective of sense of self, facilitating conditions, and school outcomes. This study enables us to understand what combination of goals or goal profiles are most likely to be favorable particularly among Filipino students. We hope that this study stimulates further examination of goals as an important variable related to motivation and achievement in the Asian context using person-centered approaches.

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Chapter 24
Relation of Social Motivation and Gender on Academic Achievement in Qatar

Ramzi Nasser

Abstract This study examined the relationship between social motivation and student academic achievement. Specifically, the study used gender and social motivation factors to predict academic achievement. Exploratory and confirmatory factor analysis were conducted for eight social motivation subscales drawn from three scales: the Inventory of School Motivation, The General Achievement Goals Orientation Scale and the Facilitating Conditions Scale. Factor analysis produced two main factors of school social motivation from eight social factors. The first factor was teacher support/positive peer and the second, social power. A stepwise regression analysis was used to examine the predictor power of the latter two social factors produced from the confirmatory factor analysis and gender differences on achievement. Results indicated that gender was not a predictor of achievement. Teacher support/positive peer students predicted school achievement scores. The findings are discussed in the context of Qatari education and culture.

Introduction

Students' motivation is generally affected by positive social interactions (Anderman, & Kaplan, 2008; Fraser & Fisher, 1982; Goodenow, 1993; Ryan & Patrick, 2001). Positive motivation provides students with a general sense of self-worth and self-esteem that creates a spirit of accomplishment and enhances interpersonal interactions between students, teachers, and classmates (Ryan, 2001).

In the classroom, socialization is defined as a process by which individuals learn social norms and values and develop social habits that allow them to interact with others (Hartup, 1996). Positive motivation has an affective and cognitive impact on students' behavior with regard to success in social learning and motivation (Harren, 1979; Nurmi, 1991; Trommsdorf, 1983; Wentzel, 1997; 1998). Motivation also plays a significant role in teacher-led instruction (Sivan, 1986). A classroom featuring a caring and supportive environment between teachers and students allows

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for greater student motivation to be engaged on tasks within a classroom setting (Baker, 1999; Croninger & Lee, 2001; Marachi, Astor, & Benbenishty, 2007; Noddings, 1992). High-quality peer interactions in a structured environment may increase students' efforts regarding their schoolwork (Newman, Lohman, Newman, Myers, & Smith, 2000; Wentzel, 1997) and may foster improved academic performances (Klem & Connell, 2004). Moreover, teachers showing positive warmth and support during organized effective lessons may increase students' achievement, satisfaction, motivation, and personal growth (Fraser & Fisher, 1982; Moos, 1979; Trickett & Moos, 1973).

Teacher Influence

Teacher influence has an important role in student academic motivation. Research has shown that adolescent students improve academically and feel more motivated when they perceive that their teachers respect, listen to, and support them. When students feel that their teachers emphasize competition, peer differentiation, and discrimination, they show higher levels of withdrawal and more negative classroom behaviors (Roeser, Eccles, & Sameroff, 2000).

A number of researchers reported that students feel motivated to achieve when their teachers are competent and supportive (Grolnick & Ryan, 1987; Harter, 1981; Jacobsen & Hoffman, 1997; Wentzel, 1997; Wiest, Wong, & Cusick, 1997; Wong, Wiest & Cusick, 2002). When students moved from classes featuring high levels of teacher support to classes featuring low levels of teacher support, students exhibited negative attitudes and showed less interest in their schoolwork (Wentzel, 1997; Wong et al., 2002). In some cases, teacher support compensates negative peer relation (Ryan & Patrick, 2001). Researchers have also found that the relationship between teacher and student influenced students' school enthusiasm (Sergiovanni & Starrat, 1988) and their likelihood of showing high levels of academic performance (Patrick, Hicks & Ryan, 1997). Effective and satisfactory relations with teachers and peers in the classroom, especially having a greater amount of teacher support available, influences young adolescents. Generally, students with high motivation were positively involved (Eccles, Rodriguez & Wigfield, 1998). Conversely, teachers related their performance to the lack of motivation and dropout rates of their students; however, when the relationship was positive, student motivation was higher (McInerney & Van Etten, 2000).

Peer Influence

Studies of social interaction between peers indicate that these relations may influence school motivation (Berndt, 1999; Brown, Clasen, & Eicher, 1986; Kindermann, 1993; Ryan, 2000). Friends may provide social and emotional support and confirm

each other's values and goals (Savin-Williams & Berndt, 1990). Further, Berndt and Keefe (1996) suggest that both the quality and quantity of peer interaction may explain a significant part of students' motivation. Epstein's (1983) theory suggests that students may select friends with whom they share common attitudes toward school but that friendship does not usually lead to positive motivation. Better affiliations with peers of similar academic standing strongly influences achievement, continued throughout the academic school period (Ryan, 2001). Kinderman (1993) reached the same conclusion, that peer groups have common motivational beliefs when they share the same perceptions and socialize with new members. Thus, peers are able to affect academic achievement either positively or negatively (Coleman, 1961). For example, negative interactions with peers may be associated with depressed mood and low levels of appreciation in behaviorally challenged male students (Roeser, Eccles, & Sameroff, 2000). On the other hand, peers who are high achievers mingle with friends who have the same motivational orientations toward high achievement, and with time, these friends develop substantially higher academic motivation. Conversely, low achievers who seek low-achieving peer groups become less motivated over time (Brown, 1990; Kindermann, 1993; Kindermann, McCollam, & Gibson, 1996). Peer motivation is connected to the closesnness peers are in groups, if holding similar educational beliefs they could influence one another in a positive or negative ways towards academic achievement as a group.

Two studies were brought to our attention which involved similar age-groups to this study. A study conducted with students from grades 6, 7, and 9 in the USA examining peer relationships and academic motivation found that motivation was highly affected by feelings of class belongingness. A positive, supportive, caring, and friendly interaction boosted motivation and classroom belongingness. A second study by Molloy, Gest, and Rulison (2011) investigated three conditions of peer interactions that involved reciprocation; it included friends, interaction dyads, and group members. Peer influence was the most important predictor of academic effort for the 7th graders. The importance of being helped by other students, feeling cared for as a person, and being aided in their academic learning (Johnson et al., 1983) and facilitated class participation and classroom engagement (Patrick, Ryan, & Kaplan, 2007).

School Social Motivation

In educational psychology, achievement motivation is widely investigated in relation to achievement (King, McInerney, & Watkins, 2013). Students generally perceive high academic achievement as a way of attaining social goals (McClelland, 1985). Still, however, consensus is not clear as to whether motivation is to attain social goals or whether social goals are what motivates people to behave in a certain way (King & Watkins, 2012). Counter to some beliefs, high academic achievement is related to social motivation (Schneider & Coutts, 1985). Youth generally strive to reach social acceptance in schools not for the purpose of achievement but rather for

individual personal investment. However, this is not free from cultural factors as Markus and Kitayama (1991) suggested that a strong and positive motive to achieve is impacted by the ability to maintain social relations and allay these relations within the group. Specifically in a collective culture, success in achievement is seen as an in-group success rather than individual success.

The most important research which started in the 1980s was to merge the achievement goal theory with motivation goals. A number of researchers merged ego and social orientation with achievement goals (Nicholls, Patashnick, & Nolen, 1985). The notion that social motivation is a driver toward achievement goals is well accepted in cultures in which the family, the extended or a larger unit, promotes achievement to exalt the family. Others such as Phelan, Yu, and Davidson (Phelan, Yu, & Davidson, 1994) suggested a number of social goals among them in achievement or even negative achievement as a way of approval and fitting within a peer group. Alternative theorizing suggested achievement as a goal desired in a way of bringing honor to one's group (social solidarity goal) or demonstrating the quality of person (social compliance goal) among the group.

Different types of social goals can be expected to influence cognitions and behavior in different ways. According to Nicholls, Patashnick, and Nolen (1985), a number of studies suggested the importance of social solidarity and in-group solidarity goals (Maehr & Nicholls, 1980). More recently, studies cited in King and Watkins (2012) investigated the different kinds of social goals. For example, Leondari and Gonida (2007) focused mainly on social approval goals. Nelson and DeBacker (2008) addressed social intimacy, social responsibility, and social approval goals, whereas other researchers focused on social affiliation and social concern goals (e.g.,, McInerney, Akande, & Lee, 2003; Watkins, McInerney, & Lee, 2002). The more recent study by Dowson and McInerney (2004) suggested five key social goals including social affiliation, social approval, social concern, social responsibility, and social status goals that are important to student academic achievement. Coupled with the research on social motives is achievement or underachievement and the proximity to the culture to the motivational events. In this study, we look at school social motivation within a nonwestern cultural context. We draw on the context's unique setting to address the beliefs and behaviors of students on how social motives may impact school achievement. In the range of theorizing and reflection in this area of study specifically by Dowson and McInerney (2004), social motivation including affiliation, social approval, social concern, and social responsibility have all focused on peer support, teacher support, and social status in relation to school achievement.

Motivation, Achievement, and Gender

Interactions among students are a driving force in school achievement. For instance, from early on, boys and girls develop friendship groups along gender lines. As a result, boys and girls develop different ways of acting and responding in the

educational environment. When students are placed together in mixed groups, stereotypically boys dominate discussion and monopolize equipment and materials, whereas girls are relegated to what might be known as feminine social roles. Research suggests that teachers have a significant influence on boys by motivating them with higher achievement expectations, especially in masculine-stereotyped activities (Meece, Glienke, & Burg, 2006). Even when all students receive a high number of opportunities to demonstrate mastery and receive positive feedback from teachers regarding their abilities, male students tend to have more interactions with teachers and generally perform better than girls, who tend to be less active in class (Brophy & Good, 1974).

An alternative view suggests that teachers may have favorable attitudes toward students who tend to be conforming and cooperative, a characteristic found more often in girls than in boys (Connell, 1996). Thus, it is plausible that teachers' motivation of students tends to be female driven (Brophy & Good, 1974; Feshbach, 1969; Kedar-Voivodas, 1983). Thus in this study, we explore social motivation identified by Dowson and McInerney (2004) between male and female students.

Method

Participants

The sample was drawn from four middle and secondary schools (public schools: Independent Schools) in Doha, Qatar. As schools in Qatar are segregated based on gender, two of the schools were for boys ($N=564$, 44.7 %) and two of the schools were for girls ($N=697$, 55.2 %). Students were from grades 7, 8, 9, 11, and 12. The sample consisted of 87.6 % middle school (grades 7, 8, and 9) and 12.5 % secondary school (grades 11 and 12).

Instruments

Inventory of School Motivation (ISM) The Inventory of School Motivation was designed to measure motivation in cross-cultural contexts (McInerney & Ali, 2006; McInerney, Yeung, & McInerney, 2001). The ISM consists of eight motivation subscales, viz, task, effort, competition, social power, social concern, praise, affiliation, and token reinforcement.

General Achievement Goal Orientation Scale (GAGOS) A companion motivation scale to the ISM is the The General Achievement Goal Orientation Scale (GAGOS, McInerney, Marsh, & Yeung, 2003) which was designed to measure specific components of students' motivational goals. It has five subscales, viz, general mastery, general performance, general social, valuing motivation, and global motivation.

Facilitating Conditions Questionnaire (FCQ) The Facilitating Conditions Questionnaire (FCQ, McInerney, Yeung, & Dowson, 2005) consists of seven sub-scales, viz, valuing education, affect toward school, peer positive, peer negative, parent positive, parent negative, and teacher influence, designed to evaluate the influence of external forces operating within the school milieu, which may impact how motivation is translated into behavior.

Given that the focus of this study was the relation of social factors on student achievement, we initially used eight of the subscales that were designed to measure social relationships from the three instruments, those being social power and affiliation, social concern, and praise from the ISM. One scale belongs to the GAGOS scale, namely, the social general, plus scales addressing teacher support, peer help, and positive peer influence from the FCQ. The eight chosen subscales are the following:

1. SOCP: Social Power (6 items)—seeking social power and status, e.g., "I work hard at school to be put in charge of a group."
2. AFFL: Affiliation (3 items)—interest in belonging to a group when doing schoolwork, e.g., "I can do my best work at school when I work with others."
3. SCRN: Social Concern (5 items)—concern for other students and a willingness to help them with their schoolwork, e.g., "It is very important for students to help each other at school."
4. PRSE: Praise (5 items)—seeking praise and recognition for schoolwork, e.g., "At school, I work best when I am praised."
5. SOCIALG: General Social (5 items)—measured students' perception of how socially oriented they are, e.g., "I am most motivated when I work with others."
6. TSUPP: Teacher Support (6 items)—measured whether students feel supported by their teachers, e.g., "I get encouragement from my teachers to do well at school."
7. PHELP: Peer Help (5 items)—reflected the importance of being helped by other students, e.g., "My friends help me with my schoolwork."
8. PPEER: Positive Peer Influence (4 items)—measured whether peers provide a positive influence, e.g., "Most of my friends want to do well at school."

Student Grades

The administration of each school provided the student grades for the following subjects: Arabic, English, Islamic Studies, Mathematics, Science, Social Sciences, Physical Education, and Art Education. The latter two were removed from the analysis, as the two subjects were graded with a pass/fail format. The remaining grades were provided in percentage scores. An average grade was calculated for the first six subjects.

Statistical Analysis

An exploratory factor analysis (EFA) was used to validate the social scales, assessing whether the observed indicators (items) reflected the preconceptualized structure. It also allowed identifying the appropriate number of factors and pattern of factor loading. Once we obtained the factor structure, we wanted to specify the pattern of the factors which explained the highest variables. We set out with two competing models: the factors with the number of items conceptualized in the original scale and those items with the high factor loadings on the EFA (Vogt, 1999). In total, there were 39 items used in the factor analysis. Bartlett's test of sphericity indicated that a factor analysis could be performed. An oblique rotation (i.e., direct oblimin rotation) was examined. The rotated factor matrix was examined to indicate the adequacy of the factor model. Thus, the factors were chosen by the criteria of eigenvalues >1.0 and the scree test. According to CFA tests, the hypotheses confirm theories about the factors one expects to find and whether the items that appeared on the EFA provided a goodness of fit. A stepwise regression analysis was performed to enter the two factors on achievement.

Results

Exploratory Factor Analysis

The exploratory factor analysis results provided indication to the items which load on factors that explain a large part of the variance. The first analysis that was conducted was Bartlett's test of sphericity [χ^2 (df = 820) = 10,994.36, p < .001)], indicating that factor analysis was possible. The explained total variance from eight factors was 44.5 %. The first factor explained the cumulative percentage of the variance, which came to 30.08 %; second factor, 3.94 %; and third factor, 3.59 %. After the second factor, there appeared a sudden change of slope with a mix of items loading on the third and remaining factors. In addition, the fifth, sixth, and seventh factors each explained less than 1.4 % of the variance and did not reach the eigenvalues of 1. In addition, the last three factors were flatter and very close to the cutoff value of "1," and their inclusion in the model was negligible.

The first factor explained most of the variance and included items of the positive peer and teacher support scales; the second factor included items of social power. The Cronbach's alpha reliability came to 0.82 and 0.83 for the first and second factor respectively.

Table 24.1 Goodness of fit results

Model	χ^2	df	p-value	RMSEA	CI	CFI	NFI
1	717.82	167	<.001	.063	0.058–0.068	0.89	0.86
2	129.65	43	<.001	.049	0.04–0.059	0.97	0.959

χ^2 Chi-Square, *N* sample size, *RMSEA* root mean square error of approximation, *CI* confidence interval, *CFI* comparative fit index, *NFI* normed fit index

Confirmatory Factor Analysis Results

The first confirmatory factor analysis (CFA) used the items of the original conceptualized scales of positive peer, teacher support, and social power. The first model entered the original items of the three scales that formed a priori factors. The second confirmatory factor analysis used those items which appeared on the EFA perceptibly forming solid factors.

The first model as well as the second model goodness-of-fit analysis showed a large χ^2 test, which was widely recognized as problematic for large sample sizes (Bagozzi & Heatherton, 1994; Jöreskog, 1973). In Table 24.1, the results of the CFA included acceptable but less than adequate measures. The second two-factor model showed meritorious results using those items that loaded on the two factors including the normed fit index (NFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The result of the CFA is shown in Table 24.1.

Regression Analysis

Once the validity and reliability of the factors were established, it was possible to examine the relationship between those factors on school achievement. A stepwise regression analysis was conducted to examine the joint contributions of the two factors on school achievement. The purpose of using such an analysis was to determine the extent to which social motivational factors and gender can predict achievement.

The reason for using stepwise regression was to explain statistically significant variables in the regression equation to predict the dependent variables. The stepwise regression examines the largest correlation between the independent and dependent variables and places it in the regression equation and then recursively selects the next highest significant predictor controlling the variance in the preceding step of the regression until all significant predictors are exhausted.

In model 2 of the CFA, the first factor constituted items from teacher support and positive peer with evidence of strong loading on the EFA recoded into one variable by adding the items and dividing by the number of the items of the factor. In model 2, the second factor of social power was entered with items from the social power scale in model 2 of the CFA. Five items of social power were added and divided by 5. The dependent variable was the average achievement scores of the six subjects:

Table 24.2 Stepwise regression analysis results

Variable	Included model				
	B	SE B	β	t	p
Factor 1	2.88	.80	.23	3.25	.001
Excluded from the Model					
The regression result with the variables entered in the regression equation at the next step					
Factor 2			−.13	−1.72	.09
Gender			.105	1.501	.135
R	0.23				
Adj R^2	0.05				
SE	8.97				
$F(df1, df2)$	$F(1194) = 10.58*$				

*Significant at 0.01 level

Arabic, English, Islamic Studies, Mathematics, Science, and Social Studies. The main predictor variable of teacher support and positive peer as factor variable resulted in a significant beta coefficient. The excluded factors from the model included factor 2 and gender. The standardized betas of the excluded factor reported no significant predictor levels (see Table 24.2 for further details).

Discussion

Today, motivating students is a concern for many educators who desire to improve learning in the face of contemporary challenges. Many adolescent students show a decline in academic motivation and high levels of alienation in the classroom (Legault, Green-Demers, & Pelletier, 2006; Snyder & Hoffman, 2002; Statistics Canada, 2002). The recent, surprisingly low ranking of Qataris in mathematics and science based on international assessments from the Program for International Student Assessment (PISA) (Baldi, Jin, Skemer, Green, & Herget, 2007) raised questions about the Qatari reform, the quality of education in Qatari schools, and, more broadly, the role of social and educational environments in the motivation of schoolchildren. To reiterate, academic motivation is a pivotal element for learning and has significant effects on students' academic outcomes.

Using the items which loaded on the two factors, the first represented teacher support/peer positive/peer support and the second social power demonstrated a meritorious CFA fit. These factors were used as a robust scale that could be used to analyze the relation to school achievement.

The first surprising finding is that sex had no direct prediction power on achievement. To address the differences on achievement, we ran a t-test mean difference ($t(df = 264) = 1.081$, $p = 0.28$); there was no significant difference between boys and girls, although girls (82.16, SD = 11.47) did achieve at higher levels than boys ($M = 80.92$, SD = 6.88). These findings are not surprising in the context of Qatar as

other research has found no differences in achievement between girls and boys (Steinmayr & Spinath, 2008). One apparent indication is that girls are encouraged by their teachers and peers to achieve and could turn this motivational affect into substantive behavioral outcomes leading to achievement where they could try to achieve academically. Thus, positive academic outcomes and social behaviors might be reciprocated in a more agreeable way and rewarded for in the classroom. A change in the social position of women has been brought about through their access to education and public life. Women in Qatar are no longer limited to just being in their homes; they can now attend schools and universities and engage in public life. Qatari women are the majority of the student population at the only National University. What motivates girls to continue their education at greater rates (but not significantly greater) than males is that there is a general cultural and national vision in Qatar to support national development and engage both boys and girls in the drive for building an information-based society.

Certainly, women's lives in Qatar and other Gulf nations are being motivated to take a larger part in the educational and social workplace and often encouraged to achieve to do so. Girls in turn might see the social component to motivation as an important drive to their academic success. Lastly, even though girls had slightly higher means than boys, these findings were considered with caution as there were no statistically significant differences. With the higher girl achievement scores, the findings are in line with research about gender achievement in gender-segregated environments where girls are reported to be encouraged by teachers to achieve away and free of male rivalry and class gender schisms.

The main predictor of achievement was teacher support/positive peer; this is not surprising as both teachers and peers play a fundamental role in social motivations and interpersonal and intrapersonal relations between students and teachers and among students (Ryan, 2001). By providing an environment in which relational affinities develop, the engagement of students in academic activities may be enhanced (Ryan & LaGuardia, 1999). Students perceiving that their classroom social environment provides strong peer affiliation, cohesion, fairness, respect, and support from both teachers and peers show more effective participation and motivated achievement (Patrick, Ryan, & Kaplan, 2007). Thus, a caring relationship between teachers and students influences students' school enthusiasm (Sergiovanni & Starrat, 1988) and the likelihood of high academic performance (Patrick, Hicks, & Ryan, 1997). Effective relations between teachers and students in the classroom allow for greater teacher support of involvement and academic engagement. Even a prevalence of negative peer relations can sometimes be compensated for by teachers' positive motivation (Ryan & Patrick, 2001). This finding in the Qatari school culture is not surprisingly different than that in any western schools. Goal achievement in many different places in the world reflects an individualist attitude to excel; even within a collectivist culture as in Qatar teacher support and positive peer socialization plays a significant role, because student achievement is seen as a social act in the context of schooling environment. Further, it is apparent that school-related social motivation is a driving force for students to achieve as seen by teachers or through peer reinforcement, having both sexes barge to excel and achieve.

Qatar is one of the richest countries in the world (CIA, 2014); its new wealth has spread very quickly, and hence parental educational level and economic status do not correspond accurately to the patterns found in Western nation states. The affluence in Qatar has brought tremendous changes to society in terms of education. Qatari parents' aspiration to have their children become educated and seek higher standards than themselves; more and more women are seeking an education and position in society where there is a general psyche and social motives to increase women's role as productive individuals seeking greater levels of workplace prerogatives and fairness.

In summary, this research has provided a valid and reliable measure of social motivation and has demonstrated that Qatari school students who perceive teacher support/positive peer motivation achieve higher than those who are low on social motivation. Many of the previous studies have shown the relationship between social motives as either positive or negative educational outcomes. Certainly, we see among girls that those who maintain high levels of social power are less likely to achieve.

The results of this study indicate that schools and teachers should provide opportunities for students to develop strong teacher and social motivation practices through enhanced positive peer support and teacher interactions in the school and classroom settings. This could be achieved, in part, through providing greater opportunities for collaborative group work and projects and through warm teacher–student interactions supporting students' achievement. Furthermore, the results underline the importance of communicating to parents about the role of social motivation in providing support and encouragement, in setting goals for their children's achievement and schooling. This may involve parental education programs for families who come from less well-educated backgrounds in Qatar.

Limitations

There are a number of limitations to this study. First, the sample is not broadly representative of schools in Qatar so further studies using a wider range of schools should be conducted. Second, the results provide an interesting perspective in that even when there are differences between individuals with high and low levels of the teacher support/peer positive on achievement, there might be parental influences that are not controlled for. Parents' behaviors and parents' beliefs about their education are reflected in their children's academic outcomes (Eccles & Wigfield, 1995), which suggest that parents could be one of the main motivators regarding their children's achievements. Second, the composite scale of teacher support/peer positive, while based upon theoretical premises, may not effectively reflect the decomposed effects of teachers and peers. Future research may look at the particular effects of each of these components. Third, the study was a one-shot, cross-sectional data collection study, therefore any inferences made suggesting causality must be interpreted with caution. Longitudinal studies are required to examine causal relationships. Future longitudinal studies examining the effects of peer social motivation on achievement as well as parental effects are needed.

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Chapter 25
Examining the Links Between Social Goals and Learning Strategies

Ronnel B. King and Dennis M. McInerney

Abstract The aim of the present study was to investigate how different types of social goals (social affiliation, social approval, social concern, and social status) were related to students' learning strategies. Secondary students ($N = 697$) from Hong Kong answered the relevant questionnaires. Results indicated that social concern and social status goals were positively associated with deep learning and achieving learning strategies. Theoretical and practical implications are discussed.

Keywords Social goals • Learning strategies • Hong Kong students

Introduction

When you ask students why they study in school, some would probably say that they want to be with their friends (social affiliation), while others would say that they want to get approval from their parents (social approval). Still others would emphasize that schooling enables them to attain a higher status in life (social status). These goals have been termed as social goals by educational psychologists (Dowson & McInerney, 2001, 2003; Urdan & Maehr, 1995).

Despite their pervasiveness, social goals have mostly been ignored in the literature. Much of the attention has been devoted to mastery and performance goals which are defined as competence-linked reasons for studying (Huang, 2012; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). However, research has shown that it is also important to understand students' social goals given their motivational power (e.g., King, McInerney, & Watkins, 2012, 2013) and their salience in collectivist cultures (e.g., Cheng & Lam, 2013; Yu & Yang, 1994).

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The main aim of the present study was to examine how different types of social goals are associated with various types of learning strategies in a non-Western context (i.e., Hong Kong). We wanted to investigate how four different types of social goals, i.e., social affiliation, social approval, social concern, and social status were associated with deep, surface, and achieving strategies among secondary school students in Hong Kong.

Social Goals

In this study, we follow Urdan and Maehr's (1995) definition of social goals as "perceived social purposes of trying to achieve academically" (p. 232). This definition is distinct from social goal definitions proposed by other scholars. Ryan and Shim (2008) defined social goals as students' social reasons for wanting to achieve in social situations. They called this class of goals as social achievement goals. Social achievement goals focus on social competence and thus differ from our definition given that our definition focuses on academic outcomes and not on social competence. Another possible definition of social goals is that proposed by Wentzel (1993) who defined social goals as the social outcomes students are trying to achieve in school (e.g., helping other students or conforming to social norms). The approach adopted in this study does not focus on the social outcomes per se but on the socially driven reasons for academic achievement.

Both achievement and social goals focus on the reasons that impel students to do well in school. While the former focuses on competence-linked reasons, the latter focuses on socially oriented reasons. For example, students who pursue mastery goals want to achieve in school for the sake of improving their competence, while those who pursue social affiliation goals want to achieve in school in order to be with their friends.

In this study, we chose to examine four types of social goals: social affiliation (wanting to be with friends and enhance interpersonal belongingness in school), social approval (wanting to get praise and approval from parents and teachers), social concern (wanting to help others in school), and social status (wanting to obtain social status and/or power in school) (Dowson & McInerney, 2001, 2003, 2004). These four types of social goals have been previously identified through qualitative research (Dowson & McInerney, 2001, 2003) and have also been found to be distinctly related to various learning outcomes (e.g., King & Watkins, 2012).

All these social goals have been included in earlier theorizing, although few researchers have examined them together in a single study. Previous studies on social goals have usually examined only one (e.g., Bernardo, 2008; Chang & Wong, 2008; Cheng & Lam, 2013; Leondari & Gonida, 2007) or two (e.g., Miller, Greene, Montalvo, Ravindran, & Nichols, 1996) types of social goals; thus, there is still a dearth of knowledge on how these different types of social goals act in concert to move students to achieve (or underachieve) in the academic domain.

Relations Between Achievement Goals, Social Goals, and Learning strategies

Goals have been related to different types of learning strategies. In this study, we focus on three types of learning strategies: deep, surface, and achieving (Biggs, 1992; Biggs, Kember, & Leung, 2001). Deep learning involves processes of a higher cognitive level which usually involves searching for analogies, relating to previous knowledge, theorizing about what is learned, reading widely, and thinking independently and critically. Students who utilize surface learning strategies, on the other hand, want to exert minimal effort and are content with rote learning. They do not bother to understand the material nor are they concerned about seeking interconnections about the materials that they have learned. Students who use achieving learning strategies want to maximize the chances of getting high grades which involves planning ahead, keeping clear notes, and being self-disciplined.

Some researchers claim that the pursuit of social goals leads to negative outcomes. Pintrich, Marx, and Boyle (1993, p. 173) argued that social goals "can short-circuit any in-depth intellectual engagement" thus pointing to the possible negative effects of social goals on educational outcomes. In an early study, Miller et al. (1996) found mixed effects for seeking social approval which was positively related to both shallow processing strategies and deep learning strategies as well as self-regulated learning. Urdan (1994) found that social approval goals were related to effort avoidance. Leondari and Gonida (2007) documented a positive relationship between seeking for social approval and self-handicapping.

On the other hand, researchers have also documented positive effects of social goals. Dowson and McInerney (2001) found that social affiliation goals were associated with positive approaches to learning. Students who want to work with others to enhance a sense of group solidarity were more likely to initiate the use of adaptive strategies like planning ahead when working with others, testing self-understanding and classmates' understanding when working in teams, and postulating clarifying questions for the teachers in collaboration with other students.

Dowson and McInerney (2003) also found that those who pursued social status goals were more likely to engage in effort management so that they can enhance their status in the present or future. King, McInerney, and Watkins (2012) found that social concern and social status goals positively predicted emotional and cognitive engagement.

Based on these conflicting findings, there seems to be no consensus in the literature with regard to how social goals are related to other constructs in the nomological network. There are various reasons for this ambiguity.

First, different studies have focused on different types of social goals; thus, it is not clear which type of social goal is associated with which outcome. Therefore, in this study, we included a wider range of social goals in order to enable us to examine their differential associations with learning strategies.

Second, social goals have been defined by previous researchers in idiosyncratic ways which led to ambiguous findings. It is difficult to obtain a coherent picture given this gallimaufry of conceptualizations. In this study, we tried to address this shortcoming by adopting the definition proposed by Urdan and Maehr (1995) of social goals as social reasons for studying.

Third, there seems to be some evidence that social goals are associated with more adaptive outcomes in collectivist as opposed to individualist cultures. Researchers have suggested that in collectivist cultures, social goals have been internalized by the students and are not perceived as extrinsic (Urdan, 1994; Urdan & Maehr, 1995). Because of this internalization, social goals can be pursued in a relatively autonomous manner and thus be related to adaptive outcomes. Cheng and Lam (2013) conducted a direct test of this assumption. They found that social approval goals were related to maladaptive outcomes only among students from individualist cultures or for those whose independent self-construal was primed. Thus, it is possible that social goals are related to educational outcomes in different ways depending on the cultural context.

The Present Study

This study aimed to contribute to the literature by investigating how different kinds of social goals (social affiliation, social approval, social concern, and social status) are related to the three types of learning strategies (deep, surface, and achieving) in the Hong Kong context.

Method

Participants

The respondents were 697 Hong Kong secondary school children (*M* age = 13.43 years, *SD* = 1.37 years, median = 14 years). The sample consisted of 356 females (51.07 %) and 341 males (48.92). 354 and 343 were in Forms 1 (equivalent to Grade 7) and 3 (equivalent to Grade 9) respectively. The samples were taken from three schools of different bandings: 241 were from a high-ability school, 230 were from a medium-ability school, and 226 were from a low-ability school. Students from these three schools were sampled in order to obtain a wider mix of students who have different levels of academic achievement. Most of the students came from families from lower to middle socioeconomic backgrounds.

Ability streaming is prevalent in the Hong Kong educational system. Secondary school places are allocated according to grades received from three examinations during the final years of primary education. Depending on their grades, students are

qualified to enroll in Band 1 (high ability), Band 2 (medium ability), and Band 3 (low ability) schools. This three-band system evolved from a five-band system which was later abolished in 2004 to reduce the severity of streaming.

Procedures

Consent of the principals from the three selected schools was first obtained. Students and their parents were required to sign the consent forms and were informed that participation in the study was entirely voluntary and would not affect their school grades. All the selected students chose to participate in the study. The study was approved by the research ethics committee of the University of Hong Kong. A trained research assistant who was also a PhD graduate student administered the surveys to the students together with the help of the school teachers. Note that this study is part of a larger longitudinal study conducted by David Watkins (Watkins et al. 2002, 2003).

Measures

For the purposes of this study, we only focused on students' responses to the social goal scales and the learning strategies scales.

Social Goals   Four types of social goals were measured using the relevant subscales of the Inventory of School Motivation-Chinese Version (Watkins, McInerney, & Lee, 2002): Social Affiliation subscale (3 items, e.g., "I prefer to work with other people at school rather than alone"), Social Approval subscale [also called Praise subscale] (5 items, e.g., "I want to be praised for my good schoolwork."), Social Concern subscale (5 items, e.g., I like to help other people at school), and Social Status subscale [also called social power subscale] (6 items, e.g., "I work hard at school so that I will be put in charge of a group.").[1]

Learning Strategies   To measure learning strategies, we used the Deep Strategies subscale (6 items, e.g., "I try to relate what I learn in one subject to what I have learned in other subjects."), the Surface Strategies subscale (6 items, e.g., "In most subjects I try to do enough just to make sure I pass, and no more."), and the Achieving Strategies subscale (6 items, e.g., "When a test is returned, I correct all the errors I

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[1] Previous research in the Personal Investment Theory has always considered social affiliation and social concern goals as types of social goals. However, social approval and social status goals have sometimes been considered as types of performance goals (e.g., Watkins et al. 2002), extrinsic goals (McInerney & Ali 2006), or social goals (e.g., Dowson & McInerney 2001, 2003). In this study, we chose the latter categorization given that social approval and social status goals can be understood within Urdan and Maehr's (1995) definition of social goals as social reasons for studying.

made and try to understand why I made them.") of the Learning Process Questionnaire (Biggs, 1992).

Previous studies have shown that the Inventory of School Motivation (ISM) and the Learning Process Questionnaire (LPQ) have good psychometric properties in the Hong Kong context (e.g., Biggs, 1992; Watkins, McInerney, & Lee, 2002) and in other cultural contexts (e.g., McInerney & Ali, 2006; Watkins, Hattie, & Astilla, 1986).

Statistical Analyses

We used structural equation modeling (SEM) to test the relationship between social goals and learning strategies where social goals functioned as predictors of the different learning strategies. We began by establishing the measurement portion of the model within a CFA framework (Anderson & Gerbing, 1988) and then proceeded to the full SEM.

Measurement Model The measurement model consisted of the four types of social goals (social affiliation, social approval, social concern, and social status) and the three types of learning strategies (deep strategies, surface strategies, and achieving strategies). Each of these latent factors was represented by three parcels. Bagozzi and Heatherton (1994) observed that it is quite likely that having more than five indicators per factor in a large sample would to lead to an unsatisfactory fit in the measurement model. To address this concern, we aggregated the items to form item "parcels" as indicators in the analysis. Using parcels is believed to increase the reliabilities of the indicator variables and reduces the likelihood that parameters will be affected by item-specific variance (Little, Cunningham, Shahar, & Widaman, 2002).

In creating parcels, we randomly assigned each item in a factor to one parcel grouping. The parcels can vary in the number of items they contain, and typically three parcels are created for each latent factor (Nasser & Wisenbaker, 2003). We followed this advice in the current study and randomly assigned one to three items to each parcel. Each latent factor in the model was measured using three parcels. In this model, the loadings between the parcel indicators and the latent factors were freely estimated, and all exogenous variables were free to correlate with each other. The measurement model had a good fit to the data (See Table 25.3), and all factor loadings were highly significant ($p < .001$).

SEM Model We first tested a model where the four social goals were posited as predictors of the three learning strategies (Model 1). We allowed the correlation of the errors for the three types of learning strategies. Deep Strategy, Surface Strategy, and Achieving Strategy factors were postulated and modeled as endogenous variables. The exogenous variables were the four types of social goals: social affiliation, social approval, social concern, and social status. A second model with the nonsignificant paths deleted was also tested (Model 2). Since the second model was nested

within the first model, a chi-square difference test was performed to determine which model best fit the data.

Results

Means (M), standard deviations (SD), and internal consistencies (α) of all measures are presented in Table 25.1. Internal consistencies for all the measures were satisfactory except for the surface strategies scale. The low alpha of the surface strategies scale, however, is not surprising given that previous research has shown this scale to have a relatively low alpha (e.g., Phan & Deo, 2007; Sachs & Gao, 2000). Because of this, results associated with surface learning have to be interpreted with caution.

Bivariate correlations are presented in Table 25.2. The correlations show that almost all the social goals (except social concern goals which were negatively related to surface learning) were unrelated to surface learning strategies. All the social goals were positively related to both deep and achieving strategies. While these correlations are in the small to medium range, this is consistent with the existing literature on the relationship between goals and learning strategies (e.g., Elliot & McGregor, 2001).

Table 25.1 Descriptive statistics and reliability analysis for each subscale

Subscales	Number of items	Mean	Standard deviation	Cronbach's alpha
1. Social affiliation	3	3.38	.66	.72
2. Social approval	5	3.33	.69	.84
3. Social concern	5	3.59	.53	.68
4. Social status	7	2.84	.63	.80
5. Deep strategies	6	3.25	.49	.66
6. Surface strategies	6	2.88	.62	.54
7. Achieving strategies	6	3.12	.68	.75

Table 25.2 Bivariate correlations among the different types of social goals and learning strategies

	2	3	4	5	6	7
1. Social affiliation	.261***	.415***	.277***	.248***	.013	.283***
2. Social approval	–	.210***	.497***	.262***	.031	.230***
3. Social concern		–	.181***	.306***	−.122**	.337***
4. Social status			–	.314***	.065	.287***
5. Deep strategies				–	−.132***	.584***
6. Surface strategies					–	−.182***
7. Achieving strategies						–

Note: * $p < .01$, ** $p < .01$, *** $p < .001$

Relationship of Social Goals to Learning Strategies: SEM

We first tested a model where all the social goals had paths leading to the three types of learning strategies. Results indicated that Model 1 fits the data well although, there were some nonsignificant paths. More specifically, we found that both social affiliation and social approval goals were nonsignificant predictors of any of the learning strategies. Social status was not a significant predictor of surface learning strategies. We deleted these nonsignificant paths in Model 2. Since Model 2 was nested within Model 1, we performed a chi-square difference test. Results indicated that Model 2 was not significantly different from Model 1 (change in $\chi^2 = 10.545$, change in df = 7, $p = .59$); thus, we adopted Model 2 since it was more parsimonious (see Fig. 25.1 for Model 2) (see Table 25.3 for the fit indices of the two models).
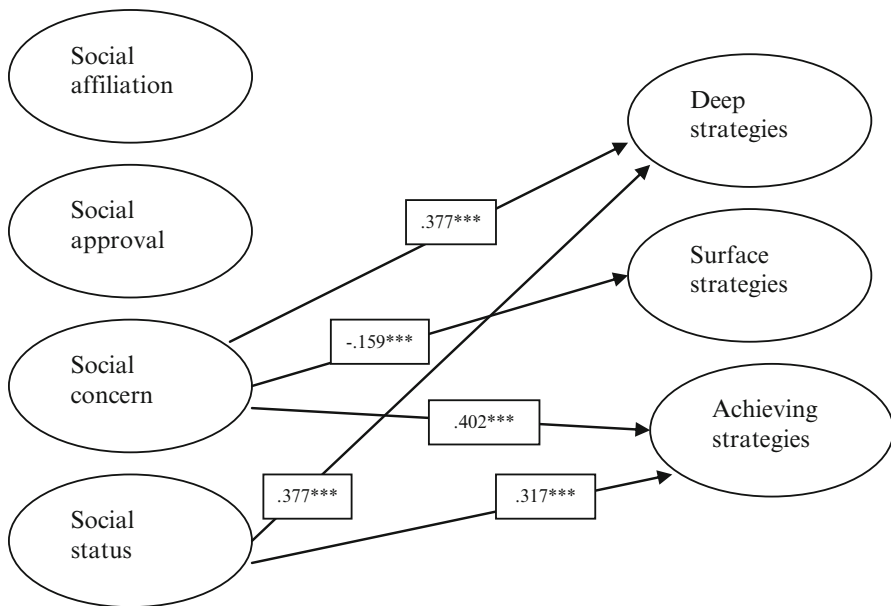
Fig. 25.1 Relationship between social goals and learning strategies. Only standardized parameter estimates are shown. Note: Parcel indicators, error terms, and correlations among error terms are not shown in order to simplify the presentation; ***$p < .001$

Table 25.3 Goodness-of-fit indices for the measurement and SEM models

	Goodness-of-fit indices						
	χ^2	df	χ^2/df	CFI	TLI	GFI	RMSEA
Measurement model	454.341	168	2.704	.922	.903	.941	.049
SEM Model 1	454.341	168	2.704	.922	.903	.941	.049
SEM Model 2	464.886	175	2.656	.921	.905	.939	.049

Note: CFI = comparative fit index; TLI = Tucker-Lewis index; GFI = goodness of fit index; RMSEA = root mean square error of approximation.

Aside from a chi-square difference test, competing models can also be compared using the Akaike information criterion (AIC) and the Bayes information criterion (BIC) with smaller values indicating better fitting models. Using these two indices, Model 2 (AIC=576.886, BIC=831.506) was likewise judged to be better than Model 1 (AIC=580.341, BIC=866.789).

The final model shows that social concern goals are positive predictors of deep and achieving strategies and negative predictors of surface learning strategies. Social status goals are positive predictors of deep and achieving strategies. Social affiliation and social approval goals are not significant predictors of any of the learning strategies in the final model (although they did exhibit significant bivariate correlations with certain learning strategies).

Discussion

The main aim of this study was to explore how different types of social goals were associated with various types of learning strategies. The results were interesting in that the different types of social goals were positively related to adaptive learning strategies like deep and achieving strategies. It was also surprising that most of the social goals were unrelated to surface learning strategies (except social concern goals which were negatively correlated with surface learning).

The findings of the current study seem to contradict earlier studies which have painted a more negative picture of social goals (e.g., Leondari & Gonida, 2007; Miller et al., 1996; Nelson & DeBacker, 2008; Urdan, 1994). Why are social goals associated with more adaptive learning strategies in the current research?

Culture may be an important factor to consider. Note that the current study was conducted in a collectivist Asian context. In such contexts, the pursuit of social goals is deemed more normative. Students may have internalized social goals which may explain their association with more positive types of learning strategies in this study.

We found that social concern goals were positively related to both deep and achieving learning strategies. They were also negatively related to surface learning strategies. This finding corroborates the qualitative findings of Dowson and McInerney (2001, 2003) who found that social concern goals were related to positive learning outcomes. It also converges with Wentzel's (1993, 2000) research which has shown that students who help others in school were more likely to do well. Wentzel (2000) argued that teachers and researchers usually think of academic pursuit as an individualistic enterprise, yet there is ample evidence showing that learning is inherently social. In order to achieve in school, students need to learn how to work with their peers and how to relate with them appropriately. Social concern goals seem to be important for facilitating adaptive school outcomes.

Results of our study indicate that social status goals are associated with both deep and achieving strategies. This is interesting given that most of the studies conducted in the West have shown that social status goals were related to maladaptive

educational outcomes (e.g., Anderman & Anderman, 1999; Nicholls, Patashnick, & Nolen, 1985). In the West, the pursuit of social status goals is likely perceived as extrinsic which may account for their association with maladaptive outcomes (e.g., Hicks, 1997; Nicholls et al., 1985).

Studies in the Asian setting, however, have painted a more positive picture of social status goals (e.g., Watkins, McInerney, & Lee, 2002). In the Asian context, education is traditionally given a high premium because it is considered the gateway to prestige and status. Kumar and Maehr (2007, p. 54) noted that among Asians, "the motivational goals promoting achievement behaviour are extrinsic, utilitarian, and social. They are directed toward achieving upward mobility." This striving for upward mobility as reflected in the pursuit of social status goals may account for its association with adaptive learning strategies in the Hong Kong context. Moreover, in the Chinese culture, studying has always been associated with the attainment of social status. In the ancient days, scholars studied hard for the civil service examinations in order to become part of the imperial bureaucracy. Even in modern times, the idea that studying is a way to attain social status and success in life is still quite pervasive for the Chinese (Lee, 1996). It is reflected in proverbs such as "A book holds a house of gold" and "If you do not study hard when young, you'll end up bewailing your failures as you grow up." This may account for why social status goals are associated with deep and achieving strategies for the Hong Kong Chinese students.

Social affiliation goals were not significant predictors of any of the learning strategies. Merely wanting to be with friends does not seem to be enough. An important factor to consider would be what kind of friends one hangs out with. It is possible that if one's friends all exhibit positive attitudes toward school, then social affiliation may actually lead to better school outcomes.

Social approval goals were not significant predictors of deep learning strategies either. This indicates that social approval goals may not be that powerful in motivating student learning. This provides further support for the findings of earlier studies which showed that social approval goals were either weak or nonsignificant predictors of learning outcomes (Chang & Wong, 2008; Miller et al., 1996). However, it might also be the case that the nonsignificant relationship we found was due to the failure of the current research to look into possible moderators of the relationship between social approval goals and learning strategies. For example, it is possible that for students with an interdependent self-construal, social approval goals may be more powerful predictors of learning outcomes (see King & Ganotice, 2015 for a similar idea).

Limitations and Directions for Future Research

The use of correlational data in the present study indicates that we cannot draw inferences about causal relations between social goals and learning strategies. A more rigorous scrutiny of the phenomena would require replication using longitudinal data. An additional limitation of the study was that we did not test for the

simultaneous effects of mastery, performance, and social goals on learning strategies because we only focused on the effects of social goals.

The third limitation was the exclusive use of self-reports in our study. While valuable, self-report data could be complemented by data gathered through other means such as teacher and peer reports and in-task assessments of the learning strategies used.

The fourth limitation was that we did not include cultural dimensions that may have moderated the relationship between social goals and learning strategies. Future research could include relevant cultural variables such as self-construal and examine whether these factors could moderate the relationship of social goals and relevant outcomes.

The final limitation was that we only included Hong Kong students in our study. Future research may consider the inclusion of a wider range of cultural groups to see if the patterns we found in this study are generalizable to other contexts. As social goal research becomes more mature, it is hoped that future researchers could conduct pan-cultural studies that investigate the correlates of social goals across a wider range of sociocultural contexts.

Implications

A key implication of the current study is the recognition that social goals are associated with learning outcomes. Educational psychologists may need to broaden the range of goals they examine beyond mastery and performance.

With regard to practice, this study suggests that educational interventions that could tap into the social goals of students may prove helpful. This study has shown that social concern goals are especially adaptive. Researchers could harness the motivational power of social goals in collaborative learning contexts to improve a learning. Peer tutoring, reciprocal teaching, and other forms of cooperative learning may be especially beneficial.

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Part VII
Adjustment and Well-Being

Chapter 26
Mainland Chinese Students' Responses to the Cognitive Conflicts in Their Adaptation to a Hong Kong University: A Developmental Perspective

Min Zeng

Abstract Students are becoming more and more mobile globally and Mainland Chinese students (MCSs) contribute a big part to this mobility. Hong Kong, emerging from the colonial era with a blended social system of the East and West, shares significantly similar cultural heritage with Mainland China while differs as well in some cultural dimensions for historical reasons. It attracts a lot of MCSs every year, especially at research postgraduate level. Things central to the mobility of the sojourning students are their adaptation to the new environment and how this adaptation may shape who they become. Amundson (1996) suggested that adaptation was usually accompanied with an increasing complexity and changes in intelligence and conceptions. It is in nature a continuing developmental process as a result of human's constant confrontation with the new environment. This study adopted a developmental approach in looking at the adaptation of MCSs in a sibling cultural environment, Hong Kong. Qualitative data were collected from 25 MCSs studying in a Hong Kong university through focus group discussions. The analytical framework of conceptual change which deeply rooted in developmental theory was applied to deconstruct the types of cognitive conflicts MCSs experienced in their adaptation to Hong Kong, how they responded to the conflict points, and at which level the experience shaped their conceptions. The implications of the study were discussed in the chapter.

Keywords Mainland Chinese students • Cognitive conflicts • Adaptation • Conceptual response • Behavioural response

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Mainland Chinese Students in Hong Kong: The Context

Mainland China is one of the biggest exporting regions of international students. In the recent two decades, universities at Hong Kong attracted a considerable number of Mainland Chinese students. They accounted for 11.8 % ($n = 10,956$) of the total student enrollment in the Hong Kong universities funded by University Grant Committee (UGC) in 2013 (University Grant Committee, 2014). At the research postgraduate level, they accounted for an even higher percentage (68 %, University Grant Committee, 2014). In the statistics reports by UGC and seven Hong Kong universities funded by UGC, these students were labeled as "nonlocal," which distinguished them from "local" (Hong Kong) and "international" students because Hong Kong has been handed over back to China in 1997 after more than 100-year governance under the UK.

Before Hong Kong was governed under the UK, Hong Kong was part of China. Both cultures were dominated by the teachings of Buddhism, Daoism, Mohism, and Confucianism (Jin, Tan, & Lu, 1999; Lee, 1996; Wang, 1998). In Confucius Heritage Culture, there is a strong emphasis on the order of importance, which means an emphasized importance of collective needs over individual ones and an emphasis on the authority of the people with higher hierarchy or more power or more knowledge (Hofstede, 2001).

While Hong Kong was governed by the UK between 1842 and 1997, Mainland China has gone through the establishment of People's Republic of China, the Cultural Revolution, and "Open Door" policy, which have induced a lot of changes in the culture of Mainland China. Hong Kong, on the other hand, emerged from the colonial era with "hybrid" features of China and the West. After Hong Kong was handed over to China, Hong Kong is permitted to have its own currency, laws, and education system. Having originated from the same culture and been developed independently under different systems for more than 100 years, the cultural environment in two places manifested some kinship as well as exoticness, which may define them as sibling cultures. They were found slightly different in the three out of five dimensions in Hofstede's culture framework (2001): power distance (the degree of equality between people in a society), masculinity (the extent to which a society or culture reinforces the traditional masculine work role model of male achievement, control, and power), and long-term orientation (a dynamic and future-oriented culture linked with values like perseverance/persistence, ordering relationship, thrift, personal adaptability, adaptation of traditions to new circumstances, and having a sense of shame) (ITIM International, 2003a, 2003b). Mainland China has slightly higher scores in these three dimensions than Hong Kong, indicating that Mainland China might be a more traditional Confucian society than Hong Kong.

Having experience an increasing enrollment by MCSs in the last decade, Hong Kong universities saw a sharp drop in 2014 in the number of application received from MCSs (Fan & Guan, 2014). There were also reports in recent years that some top scorers from Mainland China abandoned their studies in Hong Kong (Fan & Guan, 2014). Given the history of Hong Kong and Mainland China, it is of great value to study how MCSs experience their adaptation in a sibling cultural environment: to what extent their conception from previous experiences were challenged and

shaped. Such study could provide a benchmark for comparison with the studies on adaptation of students who travel between more distinctive cultural environments.

Adaptation, Acculturation, and Development

Adaptation is a developmental process where people adjust their physical and intellectual structures to the environment (Piaget, 1985). While adjusting one's intellectual structure and assimilating the features of the outer world into one's own conceptual structures, one also modifies his/her psychological structures to meet the pressures of the environment. Adaptation is a continuing process where one is constantly confronted with new environment and gets his or her belief system challenged. The challenges may call for an alternative belief system sometimes for what is considered as appropriate and result in continuous modification in one's conceptual structure (Kuhn, 1962). The cognitive conflicts coming up during the interactions with the new conceptions are often the key to induce changes in conceptions (Chinn & Brewer, 1993; Dreyfus, Jungwirth, & Eliovitch, 1990; Kuhn, 1962; Limón & Carretero, 1997; Piaget, 1977; Posner, Strike, Hewson, & Gertzog, 1982). Students who move toward a different stage of education may experience conceptions that are new or different from their previous educational experiences. The disparities may cause cognitive conflicts and call for modifications of one's conceptions. For students who move across regions or cultures, their adaptation may involve extra demand as there might be challenges due to the cultural differences as well (Redfield, Linton, & Herskovits, 1936).

The phenomenon "which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups," was defined as "acculturation" (Redfield et al., 1936, p. 149). The definition indicates acculturation as a dynamic and developmental process potentially leading to changes, where one accesses, understands, assesses, selects, and makes decision on whether or not or the extent to which one would adopt the elements of a new culture. While adaptation indicates a developmental process that all individuals go through in life, acculturation describes a special case where the contact between cultures is the trigger of the development process. Acculturation studies have been guided by theoretical approaches borrowed from mainstream social and health psychology. Colleen Ward (2001) classified the dominating studies in the field into three major theoretical and empirical approaches: stress and coping, culture learning, and social identification. The first approach applies the psychological theories of stress and coping. The affective outcomes of acculturation like satisfaction (e.g., Sam, 2001) and stress (e.g., Hashim, 2003; Jou & Fukada, 1996; Wan, Chapman, & Biggs, 1992) are interpreted within this framework. The second applied a culture learning approach, which reflects the learning of culture-specific skills needed to survive in a new cultural environment. It indicates the behavioral outcomes of acculturation. The third uses social identification theories that are concerned with people's identifications with their own groups and other groups. These theories provide a framework for the enquiry into

the cognitive outcomes of acculturation. In these studies, acculturation seemed to be isolated from developmental framework. It was conceptualized as merely studies on coping mechanism or survival skills except for the study on social identity (Sam & Oppedal, 2002). Sam and Oppedal suggested there was a necessity to bring developmental perspectives closer into acculturation research. When putting acculturation into a wider scope as a developmental process like what was denoted in its definition, questions might be asked: What is the role of acculturation in continuous development of an individual when she/he travels between cultures? How are people's prior conceptions challenged during acculturation? How do people respond to the challenges on their prior conceptions?

Another aspect of the sojourning students' adaptation is their interaction with the institutional factors in the new environment. Studies on the institutional impact on students' development have been grounded in developmental psychology. Social integration and academic integration were recognized as two essential indicators of student adaptation to the university (Braxton & Lien, 2000; Pascarella & Terenzini, 2005; Tinto, 1987, 1993; Weidman, 1989; Zepke & Leach, 2005). "Integration" refers to the extent to which the individual shares the normative attitudes and values of the peers and faculty that are required for a "membership" in that community. Academic and social integrations describe two major aspects of the "membership." Social integration is characterized by the students' interactions with peers and faculty outside the direct context of the learning environment (Pascarella & Terenzini, 2005; Rienties, Beausaert, Grohnert, Niemantsverdriet, & Kommers, 2012; Tinto, 1987). Academic integration refers to students' interactions with the environment relating to study and institution itself (Rienties et al., 2012), their intellectual development in the university (Pascarella & Terenzini, 1980, 1991; Tinto, 1975), or participation in academic work (Astin, 1986). Positive academic and social integration experiences have positive effects on student satisfaction, development (Astin, 1985; Feldman & Newcomb, 1994; Pascarella & Terenzini, 1991; Tinto, 1987, 1993; Weidman, 1989), and persistence (Tinto, 1987; 1993). Negative integration may distance the individuals from the academic and social communities of the university, demote their attachment to the university, and lead to dissatisfaction, low goal commitment, and attrition (Astin, 1985; Feldman & Newcomb, 1994; Gloria, Castellanos, Lopez, & Rosales, 2005; Howell, 1999; Johnson & Richardson, 1986; Milem, 1998; Morris, Smith, & Cejda, 2003; Pascarella & Terenzini, 1991; Peart-Forbes, 2004). The level of the challenges that may come up during academic and social integrations may depend on the level and types of the disparities one experiences.

A Developmental Approach to Adaptation

As discussed earlier, "development" is a systematic and continuous process (Lerner, 2002). It encompasses adaptation in different contexts. Change in conception is one of the main features of this process. Depending on context, there are different triggers for the changes. In acculturation, cultural difference might be the major trigger.

In academic and social integration into institutional context, the developmental challenges during higher education might be the trigger of changes. In this chapter, the focus is to look at the adaptation of MCSs in a sibling cultural environment from a developmental perspective, namely, how MCSs responded to the cognitive conflicts in their academic and social integration to a Hong Kong university and to what extent their interaction with the new environment modified their conceptions.

According to Piaget (1977), there were three kinds of adapted responses to cognitive conflicts: *Alpha*, *Beta*, and *Gamma* (Limón, 2001). An "Alpha" type of response refers to a reaction of an individual to ignore the conflicting information. A "Beta" type of response means individuals would have partial modifications on their conceptions. However, this modification is very likely to be produced through "ad hoc" explanations. A "Gamma" type of response indicates a significant modification of one's initial conception. Chinn and Brewer (1993) postulated seven more detailed conceptual responses to the cognitive conflicts. Type 1 response is ignoring the conflicting information, which is very similar to "Alpha" type of response in Piaget's framework. When an individual ignores the information that is challenging her/his initial conceptions, her/his conceptions will remain untouched. Although she/he is aware of the existence of conflicting information, she/he may choose not to attend to the information as they contradict to her/his existing schemas or the hypothesis she/he favored (Kuhn, 1989; Roth & Anderson, 1988). Type 2 response means to reject the conflicting information. Different to Type 1 response, an individual would attend to the conflicting information but choose to reject it because she/he may have questions on the quality of the conflicting information. For example, she/he may doubt the representativeness or validity of the conflicting information (Chinn & Brewer, 1993). When giving a Type 3 response, an individual would attend to the conflicting information but tend to exclude the conflicting information from the domain of initial conception when she/he thinks there is no relevance between the conception and the conflicting information. Type 4 response means to hold the conflicting information in abeyance. By holding conflicting information in abeyance, one chooses to delay the explanation for conflicting information and plan to attend to it later. Both Type 5 and Type 6 responses involve reinterpretation of the conflicting information. Individuals would relate their initial conception to the new conflicting information and partially accept the new conflicting information as something that can go along with their current conception system. Type 5 of reinterpretation may not necessarily require a change in the existing conceptual system. It allows only the new concepts to coexist with one's previous conceptions at some level. In Type 6 response, one would make a peripheral modification on the related or surrounding argument, namely, the "protective belt propositions" (Lakatos, 1970), of their previous conceptions. However, at this level, individuals are still unwilling to give up totally their original conception. In Type 7 response, an individual accept the conflicting information and change the basic assumptions in their initial conceptions to be in favor of the new conception. This change in basic assumption is seen as a change in the "hard-core propositions" of conceptions (Lakatos, 1970). This denotes a conceptual change (Limón, 2001). The ignorance (Type 1), rejection (Type 2), exclusion (Type 3), and abeyance (Type 4) responses are an *Alpha* type of responses in Piaget's

framework where the initial conceptions remain untouched (Limón & Carretero, 1997). Reinterpretation for coexistence (Type 5) and reinterpretation with peripheral change (Type 6) are a *Beta* type of responses in Piaget's framework, which denote minor change in the prior conception (Limón & Carretero). Type 7 response is the *Gamma* type of response in Piaget's framework (Limón & Carretero). These conceptual change theories were originally used dominantly in science education. In recent years, they have been more and more widely applied and brought meaningful explanation in other domains such as professional development (Hennessey, 2003; Ho, Watkins, & Kelly, 2001), social science (Lundholm & Davis, 2013), history (Limón, 2002), and Chinese medicine (Thagard & Zhu, 2003).

In this chapter, the above framework on conceptual change was applied to analyze the MCSs' responses to the cognitive conflicts involved in their adaptation to their study at a Hong Kong university in order to answer the following research questions:

1. What were the cognitive conflicts MCSs experienced in their academic and social integration?
2. How did MCSs respond to the cognitive conflicts?
3. What were the factors which influenced MCSs' responses?

Sample and Data Analysis

This chapter reviewed the focus group discussion data collected between 2004 and 2006 from 25 MCSs who were studying in one of the major hosting universities of MCSs in Hong Kong. The informants were selected based on the background variables that were found to have influences on MCSs' academic and social integration from a previous quantitative study such as program, previous degree, other sojourning experiences, length of residence, and gender (Zeng & Watkins, 2007). The informants were selected based on judgmental and stratified principles of representativeness (Fern, 2001) and their own willingness to participate. There were 11 male and 14 female students. The majority of the interviewees ($n=19$) were working toward a doctoral degree, six were working for taught master's degree. At the time when the data were collected, majority of the informants ($n=15$) had been in Hong Kong for two to 12 months. Five informants (20 %) had sojourning experiences outside Mainland China before they came to Hong Kong. The focus groups were conducted in Chinese and typically lasted about one and a half hours. All the interviews were, with the permission of the interviewees, audio recorded and transcribed verbatim into written Chinese.

The data were analyzed in light of aforementioned analytical framework on conceptual change. At the same time, the researcher kept an open mind to other potential themes and the associations between themes. The themes were first coded according to the aforementioned definitions on the responses to the cognitive conflicts. Additional code was also created for the themes that emerged from the data. When all the information units had been exhausted, the categories were reviewed for overlap and completeness. The themes were then categorized into the social and academic integration domains.

Discussion

Six cognitive conflicts were identified from the data (See Table 26.1). Three of them could be categorized as academic integration. The other three were related to social integration. They were found to have aroused different types of responses from the informants. A new theme came up in the data analysis which described another characteristic of informants' responses to the cognitive conflicts. They did not fall precisely into any of the codes in the framework of conceptual change mentioned above. Based on what it described, it was labeled as "behavioral responses" to the cognitive conflicts, referring to how informants responded to the cognitive conflicts in behavior. For example, when one informant chose to "ignore" (Type 1 conceptual response) the conflicting information, she/he might remain unchanged in her/his behavioral response. Two types of behavioral responses were identified in this study: contextual/temporary change and long-term change. Contextual/temporary change refers to a temporary modification of one's behavior often as a reaction to the urgent pressure from the environment although there is no significant change in one's conception. The person confronting with the conflict point may behave in accord with what she/he thinks is desirable in that new environment instead of what she/he believes under that circumstance. This change may become a long-term change later when there is a significant conceptual change in her/him supporting that behavior. The contextual/temporary change may also be subject to change toward other directions due to this person's further observation and experimentation with her/his behavior and conception. The long-term change refers to a complete shift to another behavior. In the light of the themes identified from the data, the aforementioned research questions were discussed below with respect to social and academic integration of MCSs. The letter "I" was used to refer to the interviewer when a series of conversation was quoted. The informants in the quotation were coded using other English alphabets.

Social Integration

Three cognitive conflicts were identified in informants' social integration. They involved the disparities in the conceptions on peer relationship, social practice, and some specific topics relating to politics or MCSs' own ethnic group. Cultural difference seemed to have played big roles in the first two cognitive conflicts. In the following section, each cognitive conflict was discussed in detail in relation to the research questions.

Peer Relationship In Mainland China, the relationships among students supervised by the same supervisor are usually very close. They see themselves as a collective group. It forms a special and close connection among its members. The senior students are happy to help when asked by the junior students. Sometimes, they even offer to provide guidance or help for new students without being asked if they see new students in trouble. This is regarded as a responsibility of the senior student in this collective group. Meanwhile, junior students show great respect to senior students. This does not mean that junior students should follow the seniors

Table 26.1 Mainland Chinese students' responses to the conflict points in their adaptation to a sibling cultural environment

Conflict point in adaptation experience		Conceptual response		Behavioral response	
				Contextual/ temporary change	Long-term change
Social integration	Peer relationship 1	Reinterpretation with peripheral change (Beta type)	Attending to and reinterpreting the conflicting information, peripheral changes on some assumptions (e.g., the previous conception on peer relationship applies only to people from Mainland China)	Yes	Not known
	Peer relationship 2	Rejection (Alpha type)	Attending to the conflicting information, rejection due to the doubts on its generalizability (e.g., the new type of peer relationship might be relevant to a specific type of person only)	Yes	Not known
	Social practice	Accept the conflicting information and change conception (Gamma type)	Attending to and totally accepting the new conception	Yes	Yes
	Views on political topics	Rejection (Alpha type)	Attending to the conflicting information, rejection due to the doubts on the reliability of the information (e.g., doubts on reliability of the information that supports the new conceptions)	No	No
Academic integration	Meaning of the degree program	Reinterpretation with peripheral change (Beta type)	Attending to and reinterpreting the conflicting information, peripheral changes on some assumptions (e.g., there are different conceptions on what a research degree involves)	Yes	Not known
	Supervision	Reinterpretation with peripheral change (Beta Type)	Attending to and reinterpreting the conflicting information, peripheral changes on some assumptions (e.g., there are different conceptions on the role of a supervisor in a research degree)	Yes	Not known
	Instructional method	Accept the conflicting information and change conception (Gamma type)	Attending to and totally accepting the conflicting information, change on the hard-core propositions of the conception	Yes	Yes

and never challenge them. It means respecting senior students as individuals who know more, who came to the group earlier, and who are willing to help. In Mainland China, the students supervised by the same supervisor address each other as "academic brothers/sisters." The senior students are respectfully called "elder academic brother/sister." The analysis found one of the cognitive conflicts in social integration was that some MCSs expected a similar type of relationship with their "academic brothers/sisters" when coming to Hong Kong but found there was a different expectation in Hong Kong culture:

> H: There is a girl in our faculty. She came a few years earlier than us. When a Hong Kong student joined, she welcomed the Hong Kong girl and said "you are new student. I am your academic sister". The Hong Kong girl looked very surprised because they didn't have such an addressing style. … "Academic sister" is a very common address to us. It is a very natural relationship. But the Hong Kong student seemed to be very independent. She couldn't accept this address although they were supervised by the same supervisor. I think they (HK students) are just independent. When you need their help, they will help you very enthusiastically, very nice. … This might be due to the fact that the space in Hong Kong is too small. It is too crowded. So everyone develops the habits of marking a space for themselves. They may grow up with this habit.
>
> W: Yes, Mainland Chinese students usually tend to do things together, like working together and having lunch together. It is very common. When it comes to the relationship between academic brothers or sisters, we can make jokes of each other since we are very familiar with each other. Rarely would senior academic brother or sister ask younger ones to help them. Most of the time, it is the junior ones who ask for help from the senior ones. We see this type of relationship as very natural thing. But in our lab, I felt it was totally the other way around. We have a senior academic sister who is graduating this year. She is preparing her viva. She is a Hong Kong girl. Those other Hong Kong students, who came one year later than her, would run to help her if they heard her calling their names, even if she called from a very remote corner of the lab, no matter what they were doing and how far away they were.
>
> S: Yes,… When they work in the office, they don't like to chat with each other like we do. All of them would sit there reading the books and leave the office immediately when it is time to get off work. …It is very hard to build connections with them. They seem to be very independent from each other too (between Hong Kong students). They don't go out for activities together like we do among a few students who work in the same lab and have good relationship with each other. They are independent from each other.

It was obvious that these informants chose to reinterpret the conflicting information when confronting with the cognitive conflict. They developed some new understanding on the "peer relationship," knowing that there were different conceptions and expectation on peer relationship in the new context. While this conflict point did not necessarily topple down their original conceptions on "peer relationship," it did raise their awareness of the alternative views on "peer relationship." Therefore, their conceptions on "peer relationship" became contextualized and multidimensional. In accord with the reinterpretation of the conflicting information on "peer relationship" and modification on their conception, most informants changed their expectation and the way of behaving as well when working with Hong Kong peers.

There was another case on "peer relationship" which was not specifically related to cultural difference though it involved interactions between people from Hong Kong and Mainland China.

W: I remember the first thing my senior academic brother taught me was to toady to him. He forced me to toady every day. … I summarized with other students in the lab yesterday. The sentence I said mostly frequently since I came here was "it is all my fault". Sometimes, he used something and put it somewhere instead of returning it to its original place. When he could not find it the second day, he would ask me if I saw it. I thought about it and told him to check in a certain place as he used it there. He found it there then and came back to say it was me who put it there. I was pretty sure it was him who put it there. But he blamed me for it. He asked me to admit it was my mistake. Only then he walked away contentedly.

H: No, it can't be true!

W: He was just …

Q: I know you meant he is not spiteful. But if the whole environment is like this, I will ….

H: You were suffered from bullying.

W: At the beginning, I felt the distance between us as he was a Hong Kong person. After getting along with him for one month, I think he is just this type of person. I can take him as a child. Children like others to make concessions to them. When I make a concession to him, it would be fine then. In fact, I do not lose anything that way. It is just admitting a mistake, isn't it? I won't be punished for it. So it is fine.

This type of peer relationship seemed to be very new to Student W. Therefore, she could not hold onto her original expectation on "peer relationship" when working with her senior academic brother. Clearly, she attended to the conflicting information and decided to give up her expectation on peer relationship and follow her senior academic brother's request. However, this attendance to the new information seemed not leading to conceptual change as she felt "he is just this type of person." The conflicting information seemed not representative enough to her to justify the need for a change in core conception. She saw this type of relationship as relevant only with this senior academic brother. This type of response might be classified as a Type 2 conceptual response (rejection). Interestingly, in this case, there was a behavioral change coexisting with this rejective conceptual response: Student W changed her behavior without necessarily changing her conceptions. One possible explanation of this phenomenon might be there was an urgent call from the environment for a behavioral change as perceived by Student W at that time. So she changed her behavior temporarily as a reaction to the call although it was inconsistent to her conception then.

Social Practice It is common in acculturation settings that people find different social practices in a new environment. Due to the disparities in the social practices, the acculturating people may be seen as "rude" by the host culture sometimes, which may cause frustrations or discomfort in both groups. In the focus group discussions, some MCSs mentioned that they identified some stereotype views toward them during social interactions in the new environment and felt uncomfortable at the beginning. Later, through the reflection on the daily observations and interactions with the local people, they developed new insights into these views.

Z: A typical example is they are afraid of going to Guangzhou and Shenzhen. Seeing that Mainland Chinese were pushing to get onto the bus, they felt terrible. … Sometimes, we can understand why they have those views. … If you stay here for a long time and go back again, you may have similar views. I think it is very helpful for people to think about things from another angle. You can learn a lot about how others see things. … I felt it was prejudice at the first. But when you learnt more, you

would find some of their views were wrong, or they didn't know enough yet to form such a view. But with regards to the point I mentioned just now, I think they are right when saying Mainland Chinese are not civilized enough in this regard. You could find that people in Hong Kong seldom push to get onto the bus. It is the basic quality of their citizenship. Hong Kong is developed and has its civilized citizenship. But the average cities in Mainland China haven't reached this level yet.

There seemed to be a Type 7 response involved in this case. Due to the different habit in social practice, the ethnic group Student Z represented was regarded as not civilized enough. Student Z saw it as a prejudice at the beginning, indicating there was conflicting perception on these social practices. After deep engagement with the local people and, more importantly, proactively attending to the disparate social practices and views of the local people, Student Z changed his perceptions on the related social practices. As he said, he "may have similar views" now, which means he became to be in favor of the new conception.

Views on Political Topics There were sometimes some topics which were considered sensitive by MCSs. These involved politics or values that entangled with one's emotions toward a country or nationality. Sojourning in a new place, the informants found it inevitable sometimes to be involved into discussions on these topics. Some students mentioned they had such experiences and were exposed to different perceptions and arguments. They clearly attended to "conflicting information" but seemed not willing to change their conceptions.

> Q: I am an independent person. If it is not for the work, I am quite passive in the interactions with others. I am basically a person who would not initiate interactions with others unless others initiate it. I had a fight with an American. He started proactively a discussion with me on an issue. A few days later, he attended a course on Chinese foreign policy. After he came back from the course, he added me on MSN and said he was very interested in the politics in China. He heard I was the expert in this area and wanted to explore some issues with me. When it came to the third day of our discussions, he asked me, in class, what I thought about the US' bombing of Chinese embassy.
> Y: This topic was too sensitive!
> Q: An American asks a Chinese journalist such kinds of question. I knew it was inevitable. It is in Hong Kong after all. … I think both of us have been quite restrained when talking about this. We still got into a flight at last. Then we fell out.In one month, we didn't talk to each other at all. About two days ago, he took initiative to say sorry to me. What I was thinking was this was a sorry to me personally only. But what he hurt with his words was not my personal feelings. Till now, he didn't say sorry for those words he said.
> Y: XXX (a teacher) talked about this all the time in his class and spoke about Chinese diplomatic problems. … He asked me about this and questioned me why the Chinese government tried to fan anti-American sentiment among Chinese.

Like one of the informants said, "it is in Hong Kong after all"; being in a new environment where the West meets the East, these students met with the ideas from all over the world. The informants had tried to respect and understand from local people's views when responding to the conflicting ideas in terms of social practices as discussed above. However, they seemed to have more reservations in doing the same for the topics relating to their ethnic group and country. One possible reason might be their doubts on the reliability of the data that supported the alternative conception. For example,

many informants felt that some impressions on Mainland China among the general public outside Mainland China were not very true and up-to-date. Therefore, they raised questions on the conceptions based on these false or out-of-date information.

> M: My peers and I also had a fight with an Indian. He kept saying China is not good. We would debate with him…. What he said about China was not true at all. What they knew was what was reported by their country, which was not true at all.
>
> S: I found that Hong Kong people knew very little about Mainland China. … This could be observed in the TV plays in Hong Kong. They had the impression that if one went to Mainland China, s/he could get arrested for no reason. The expression they used most frequently was "evaporation from the earth". Such plots appeared in the TV plays a lot. Recently, I had a chat with the people here. They had more academic exchange now with the higher education institutions in Beijing. They went there very often now for conferences. They told me they found there were a lot of changes in Mainland China now. When they went there physically themselves, they felt things changed. I looked at them and told them Mainland China hasn't changed at all in this regard. People didn't get arrested on street for no reason even in 1990's. I think they really knew very little about Mainland China.
>
> J: Their knowledge about Mainland China may dwell on what happened during the Cultural Revolution.
>
> S: Yes.
>
> W: I think it is very much to do with the propaganda in media. In Hong Kong, films, for example. They were still exhibiting the films like "Old Well" and "Yellow Earth" last time when I went to the Culture Centre.
>
> L: They were from 1980's.
>
> W: I didn't look at the headline. So I didn't know whether it was an exhibition particularly on the films produced in 1980's. On the other side of the hall, there was exhibition on operas and things alike from foreign countries, some very famous arts. For China, of course, there were Beijing Operas as well. Other than that, there were these films. These were still the only things demonstrated to others. … They were in fact not representative of Mainland China at all.
>
> J: The first impression was usually most lasting. When they saw the films like "Red Sorghum" and "Raise the Red Lantern", they may think of Mainland China as what it was portrayed in the movies.

Having doubts on the validity of the supporting information, these informants raised question on the appropriateness of the conception supported by them. That was probably why they rejected the conflicting conception.

Academic Integration

There were also three cognitive conflicts identified in informants' academic integration during their studies at Hong Kong. These involved the disparities in the conceptions on supervision, meaning of the degree program, and instructional methods in classroom teaching. In the latter two, the cultural differences between Mainland China and Hong Kong seemed to have contributed to the conflicts.

The Meaning of the Degree Program To apply and study for a degree program, most informants had initial conceptions on the meaning of these degree programs. These conceptions might be developed from their previous cultural and educational experiences. The focus group discussions showed that sometimes there were alter-

native conceptions that came up in students' adaptation which called for a reexamination on their previous conceptions. For example, Student G got his master degree from Mainland China. He found his supervisors' perceptions on what made a PhD research at this Hong Kong university were very different from what he learned in his previous experience. It took some time for him to adapt to this new approach.

> G: Honestly it is very troublesome when the supervisor leaves students alone. To us, the most important thing is to look for ideas. This, especially when one just came from Mainland China. In Mainland China, honestly, for Engineering, it was mostly about doing projects. The supervisor bade for some projects from outside for students to do. Rarely would one sit down to do real research. It was especially true in universities which had a focus on Engineering and Sciences. It is different here. We need to do research. There is no project for us to do. The supervisor will not find project for you to do. You have to read papers and find an idea yourself. Try to find out which area is worth investigating and then focus on it. This is the most difficult part because many of us don't have this training and experience.
>
> I: So the issue with "idea" is the difference between Mainland China and Hong Kong universities?
>
> G: Yes. Also, in Mainland China, we did not do theoretical research. We did some very well-tested and basic experiments. It was very common in Mainland China. We all did these. However, we need to do something that nobody has done while doing research here. It would be meaningless if someone has done it already.

Having realized the conflicts in the conceptions on the degree program, Student G attended to the new information and related it to his initial conceptions. He came to realize there were different practices in different places. It was a pity that it remained unknown whether his conception on the meaning of degree program was changed or not as the interviewer failed to probe further on this point during discussion. However, Student G changed his behavior from waiting for the supervisor's apprentice instructions to taking the ownership and initiative for his research.

Perceptions on Supervision What student G talked about above touched upon another theme that emerged in the discussions: perceptions on supervision. Students came to Hong Kong with some initial conceptions and expectation on supervision which were in line with their perceptions on the meaning of the degree programs. There were different conceptions on what made good supervision. Some preferred regular and close supervision. Some preferred more freedom in their research. For some students, what they experienced matched well with their perceptions. For some, they experienced conflicts in the conceptions. For example, Student S struggled a lot during the early stage in her PhD. As she had no experience in doing research, she came with the hope to have more support in defining her research project. It took some time for her to understand that her supervisor might prefer to manage the broader direction for her study only and it was her own responsibility to manage her own research. She modified her perception on supervision through this experience.

> S: My supervisor has two topics under his supervision. … I wonder why I am the only one who is doing this topic. It is a very big topic. What my supervisor did was to manage the direction. There are a lot of things one can do under this topic. I have to find something to do myself. I find it very painful. It has been a year already. He still keeps telling me to find it myself. He would not tell you what to do in detail.

However, for the other topic, the other students knew very clearly upon their arrival what they needed to do, the methodology, and what the research problem was. It was all very clear. What they needed to do was to implement them. He told me what I was doing was different from theirs. He could only tell me in a broader sense what I could do. I needed to work out the methodology and research problem myself. I felt very miserable. … I actually think we do have a lot of communication between us. But I can't expect more supervision than I have now. ... I guess for a supervisor like him, up to his level, when he opens a new area he might be new to the area himself. Then he recruits a student to do the research in this area and publishes in this area. It is not possible for him to work on each detail unless he started with this area and worked on everything in detail himself in the past. If that is the case, we will then be able to follow him. But then there is no meaning for us to do the research on that any more. So now, I think the role of a supervisor is to manage the direction and progress, make sure what you are doing will contribute to the field, and make sure you will be able to graduate. This is how I feel now. I could not expect him to tell me the details. I shall take up the major part.

As observed from the conversation, it was not always a pleasant experience having to struggle with one's own initial conceptions, accepting the conflicting information, and changing one's conception. However, due to either the urgency of the circumstances or incapability in changing the other party involved in the circumstance, one might need to have a peripheral modification on one's conception or at least allow the new conception to coexist with one's initial conception in order to meet the pressure of the environment. For example, Student W also modified her expectation on supervision. The new information become less "conflicting" as she could explain it and live with it afterward. But that did not necessarily change her core perception on what good supervision was.

W: If I can choose, I will choose a supervisor who supervises a smaller group. That way, a supervisor supervises only two or three students, each student will get much more guidance. …. I am just saying if "I can choose". The fact is my supervisor seems to have more than twenty students, I guess. … Every time, we use QQ or Net-Meeting to meet. … In fact, she is very busy herself. When there are too many students, it is not possible to have too much communication with us. It is good enough already if she could give us a bit advice on our project. We can't ask for too much. I know a boy who lives one floor up in our dormitory. His supervisor is better. His supervisor is a very nice person. He chats with this students and encourages them to do something they are interested in. He puts himself into his students' shoes. He has only two students. That learning atmosphere is what I want. … This boy came here for two weeks already. He got way too much free time having nothing to do. So he went to talk with his supervisor about this. His supervisor said: "Sorry, I meant to give you some time to adapt to the environment here. I didn't expect this will make you feel this way."

Y: What a great supervisor! He allows time and space for students!

W: I came to Hong Kong in the afternoon on XXX September. At 5 pm on that day, I met with my supervisor already. I handled some personal things on the second day and then started to do the experiments on the third day already. I felt very distressed as there were still quite a lot of personal things I haven't settled yet, like obtaining my ID card, registering with the faculty, and so on. … Now I think every supervisor has his/her own style. We can't expect them to meet perfectly our expectations. If they can, that is the best. But we can't force them if it doesn't match. So the point is to get as much as possible their help for research. This is our purpose when coming here for study. If we can get enough help, it is fine.

Instructional Method In the traditional Mainland Chinese classrooms years ago when the informants of this study were studying in Mainland China, teachers still dominated the classroom communication. Some informants mentioned that instructional methods at this Hong Kong university were different to their previous experiences. Some raised questions on their effectiveness. As one of the students said, he found it hard to adapt to the teaching styles in Hong Kong at the beginning as he expected to hear more from the teacher. He found it was the students who did the most talking in the classroom. At last, this new experience seemed to result in some changes in this student's classroom behaviors.

> J: They have a few different types of courses, lecture, seminar and workshop. They come together and make a good combination. … I think many people may not be very used to such instructional styles. For example, me. I went to a course taught by my supervisor. … They (HK students) seemed to be very familiar with and used to this instructional style. But I came (to Hong Kong) only recently. I doubted what we can learn with such an instructional style. The teacher seemed to talk very little in the class. It was all about discussions. But we did learn from the discussion. They had a particular belief on such kind of instructional design. They believe that students shall sit together to exchange their ideas. For example, there are five students. Everyone talks about his or her own ideas. You will harvest five different ideas. They hold this kind of insights into teaching. … Later, I gradually got used to this teaching style. They talked about their curriculum. I talked about the curriculum in Mainland China.

Conclusion

In this chapter, how Mainland Chinese students reacted to the cognitive conflicts in their social and academic integration in a Hong Kong university was studied from a developmental perspective. It provides important implication on the appropriateness and benefit of looking at acculturation as a developmental process. The theoretical frameworks on conceptual change (Chinn & Brewer, 1993; Limón, 2001; Piaget, 1977) were found applicable for the analysis of MCSs' adaptation. It provided analytical tools to understand systematically sojourners' responses to cognitive conflicts during adaptation and to what extent the acculturation may shape people's prior conceptions.

The cultures of Hong Kong and Mainland China were sibling as they were originated from the same culture and had developed independently for over 100 years. Previous studies found only minor disparities in power distance, masculinity, and long-term orientation between the cultures of Hong Kong and Mainland China. Under such a context, this study found six possible conflict points MCSs encountered in their adaptation to their study in a Hong Kong university. None of the six conflict points seemed to be directly related to the abovementioned three cultural dimensions. The cognitive conflicts in peer relationship seemed to be related to another cultural dimension in Hofstede's cultural framework: individualism and collectivism, where there was no significant difference found between Mainland

China and Hong Kong. According to Hofstede (Hofstede, 2001), a high ranking on collectivism means a culture that shows close ties between individuals. Everyone takes responsibility for fellow members of their group. MCSs in this study seemed to be hoping for a membership within a collective group, where there is orderly and friendly relationship among the members. This showed an emphasis on collectivist values. Hong Kong peers seemed more individualistic on this point as perceived by MCSs in this study.

MCSs' responses to the conflicting points in this study varied from *Alpha* to *Gamma* type (see Table 26.1). Of the six conflict points, two seemed to have induced conceptual changes among the informants: social practice and instructional methods. The informants reported behavioral changes in response to these two cognitive conflicts. There were two rejected cases. One was related to MCSs' conceptions on peer relationship. The other was related to the specific topics relating to MCSs' own ethnic group and country. The other three conflict points were found to have driven the informants to reconsider their previous conception in the new context. The informants either allowed the new conceptions to coexist with or had some peripheral changes on their previous conceptions. There was no "ignore" case identified in both academic and social integrations among MCSs. This was different from the studies in science education, where students might choose to ignore conflicting information even when they were aware of them (Chinn & Brewer, 1993; Limón, 2001; Limón & Carretero, 1997). This might be due to the features of the informants as postgraduates, whose programs posed a demand for deep thinking. These students might be used to reflect deeply about things due to this demand. So they might tend not to ignore completely the conflicting information they were aware of.

Apart from the conceptual responses, two types of behavioral responses (contextual/temporary and long term) were also identified in this study. While most of the informants' conceptual responses were accompanied by a contextual/temporary behavioral response, there was not always a long-term change identifiable except in two Type 7 (acceptance) cases. This might be partly due to the fact that this study looked at a comparatively short period of MCSs' adaptation experience. Except for two Type 7 (acceptance) cases and one Type 2 (rejection) case, the conceptual responses in other cases seemed to be accompanied with inconsistent behavioral responses (see Table 26.1). Such inconsistency between the two aspects of the informants' responses (conceptual and behavioral) occurred when there was urgent pressure from the environment for behavioral changes. The informants strategically adopted the behaviors that were adaptive to the new environment in order to meet the pressure from the environment. This provided an important implication for the acculturation studies. One of the popular measurements of acculturation status was to assess the extent to which the acculturating people adopt certain cultural practices. The potential inconsistency between behaviors and conceptual responses during adaptation may be a risk factor one needs to consider in acculturation studies. The measurement of culture-specific practices may not be vigor enough to tell the full story of acculturation. While it can be helpful to describe the behavioral level of people's acculturation, it may not necessarily manifest precisely a person's identity with a culture.

The study identified three factors that might play roles in MCSs' responses to the conflict points. The first factor seemed to be students' perceived credibility of the conflicting information that supported the new conception. The conflicting information from one's own experience or witnessed experiences by known peers usually carry more weight. They were more likely to be trusted for the consideration on the new conceptions. The second factor was the value of conflict point. The conflict point that was related to the core commitment of MCSs' sojourning experience or was exerting high or urgent pressure on them seemed more likely to induce reinterpretation of the conflicting information. To MCSs, the academic aspiration had been one of the major reasons of their decisions to study in this Hong Kong university. This might be one of the major core commitments in their sojourning experience. Therefore, the conflict points relating to this core commitment may draw more attention and cause deeper reflection from them. In the case when the reinterpretation on the conflicting information was not convincing enough to support a change in the conception, reinterpretation may result in coexistence of initial and new conceptions. The third factor might be the distance of the new conceptions from people's hard-core assumptions. The hard-core conceptions of a person are usually supported with greater amount of and more "reliable" data from one's previous experience. Therefore, it may take more "reliable" data and perhaps more time as well to be overthrown.

This study adopted developmental perspective when looking at MCSs' adaptation into a sibling culture. In science education where developmental perspective was applied dominantly to understand students' changes in conceptions, conflict points were found to be the trigger for conceptual changes. It was therefore presented to the learners deliberately in instructional design for intended conceptual changes among learners. Unlike the conceptual change occurring in people's development of understanding on scientific conceptions, there is usually no well-defined or designated direction for a conceptual change during adaptation. While the adaptation may be a general direction of human development, each individual may experience the journey to a different destination when reaching a comfortable adaptive status of her/his own. As there is no specific designated aim, there might also be no unified starting and ending point through which one could purposefully look for a "change" as researchers in science education could do. The study on conceptual changes in adaptation requires researchers to have a more open mind while looking for changes. Another important feature of conceptual change in adaptation different from conceptual change in science education is that there might not be an absolutely right "target" concept for adoption or replacement in adaptation. There might be more cases than in science education where a conflict point calls for accommodation of an alternative conception or enrichment to the prior conception in a new context rather than a complete replacement. There might be fewer cases where a prior conception is considered as a complete misconception.

The discussion of this chapter was based on the interviews with MCSs in one Hong Kong university. The selection of the informants was based on voluntary basis. Besides, majority of the informants in this study were year one students. Therefore, this study might only present a picture of conflict points MCSs might go

through in an early stage of their adaptation. One should be aware of the limitations regarding the context and the sampling while interpreting the findings. It would be worth studying further in the future the congruence or incongruence between conceptual and behavioral responses to the cognitive conflicts during adaptation and why. Affective responses could be added to this framework as well to cover the three major aspects of cultural adaptation (Ward, 2001). It may be also worthwhile to expand this developmental approach for acculturation study on sojourning students who travel across cultures with greater disparities and how students may react to the cognitive conflicts coming up.

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Chapter 27
Traveling a Thousand Miles: Determinants of Cross-Cultural Adaptation of Asian Students in Australia

Baohua Yu

Abstract This paper reports the results of a questionnaire survey conducted with 261 Asian international students across different disciplines at a university in Australia studying for their bachelor's, master's, and doctorate degrees. This research investigated the differences in L2 proficiency, integrative motivation, linguistic confidence in L2, as well as the determinants of cross-cultural adaptation between Chinese and other international student groups. The results show that linguistic confidence in L2 is the strongest predictor of sociocultural adaptation for all Asian international students and academic adaptation for Mainland international students. Moreover, integrative motivation and L2 proficiency as significant predictors of sociocultural/academic adaptation are found in the sample of Mainland students. As the predominant group, Mainland students display lower levels of L2 proficiency, linguistic confidence in L2, as well as sociocultural/academic adaptation relative to other international students. Implications to host institutions, host faculties, international students, and future research are also considered in the paper.

Keywords Linguistic confidence in L2 • L2 proficiency • Integrative motivation • Cross-cultural adaptation • International students

Background

Studying in a multicultural environment has become overwhelmingly popular all over the world. Since the past two decades, well-developed countries in higher education, led by the USA, the UK, Australia, Canada, and New Zealand, have been receiving increasing numbers of international students mainly from Asian countries, particularly Mainland China (Marginson & McBurnie, 2004). Among English-speaking destinations, Australia ranks as the third largest recipient of overseas

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higher education students behind the USA and the UK (Reserve Bank of Australia, 2008). Moreover, Australia hosts the highest proportion of international students in higher education tertiary-type A programs in the Organisation for Economic Co-operation and Development (OECD), which accounts for one-tenth of the world market for international higher education (Bradley, Noonan, Nugent, & Scales, 2008).

The population of international students in Australia has been increasing with a tremendous speed, growing from 21,000 in 1989 to over 250,000 in 2007, among which over 80 % of international students are from Asia in Australian higher education, including 21 % from Mainland China (Bradley et al., 2008). International students make great contributions to overseas academic communities in enriching cultural diversity and increasing financial income to host countries; however, they often have difficulties in adaptation to new learning contexts, with many facing daunting linguistic and academic challenges (Devos, 2003; Leder & Forgasz, 2004; Skyrme, 2007). In a recent study of international students in Australia, Sawir (2005) identifies their problems in coping with a second language (L2, henceforth) and highlights that lack of confidence in speaking a L2 is one of the serious learning difficulties facing international students. L2 research (*cf.* Dörnyei, 2005; Noels, Clément, & Pelletier, 2001; Noels, Pelletier, Clément, & Vallerand, 2000) consistently support that motivation is a vital factor determining a learner's success in learning languages. Moreover, integrative motivation is often assumed to be more powerful than instrumental in successful SLA (Dörnyei, 1990; Gardner & Lambert, 1959, 1972), and it also plays a very important and positive role in determining a successful sociocultural/academic adaptation (Yu, 2010).

Nonetheless, Asian international students in Australia remain understudied compared to those in the USA and the UK. This study aims to give an insight into Asian international students' cross-cultural adaptation and its relationships with L2-related factors including integrative motivation, L2 confidence, and L2 proficiency. More importantly, it investigates the differences between Mainland and non-Mainland student groups and leads to the identification of the key predictors of their sociocultural/academic adaptation between these two groups.

Literature Review

Cross-Cultural Adaptation of International Students

Church (1982) suggests that international students experience difficulties elicited by the new culture in addition to the problems encountered by domestic students. Accordingly, more recent studies show that international students encounter problems pertaining not only to sociocultural adaptation, such as adjustment to social customs and norms (Schwarzer, Hahn, & Schröder, 1994), and psychological adaptation, such as feeling depressed, anxious, and lonely due to the loss of their social support networks (Sandhu & Asrabadi, 1994; Yang & Clum, 1995), but also

academic adaptation such as worrying about their second language proficiency and academic performance (Hayes & Lin, 1994; Kagan & Cohen, 1990; Ying & Liese, 1994). In the West, researchers in cross-cultural psychology have conducted a considerable amount of research on the acculturation of international students focusing on culture shock, sociocultural adaptation, and psychological adaptation, but little attention in this area has been directed to investigating students' academic adaptation and second language acquisition though academic adaptation is so crucial for a successful career in the university.

The primary task of most international students is to obtain good academic results in the foreign institutions. Academic issues are at the forefront of both these students' and their institutions' concerns. Research shows that academic success has a significant impact on students' sociocultural adaptation (Zeng & Watkins, 2004) and psychological well-being and vice versa (Li & Kaye, 1998). "Cross-cultural adaptation" in this paper refers to international students' sociocultural and academic integrations with the target language group, which are seen as the two indices for measuring adaptation of Asian international students in this study. This conceptualization combines Ward's notion of sociocultural adaptation that refers to an individual's ability to fit in or negotiate interactive aspects of the new cultural environment (Ward & Rana-Deuba, 1999) with Tinto's academic adaptation that refers to an individual's ability to be involved in positive educational outcomes (Tinto, 1993).

Relationship Between Second Language Proficiency and Cross-Cultural Adaptation

Masgoret and Ward (2006) established an interactive model of the relationships between target language proficiency, communication competence, effective intercultural interaction, and sociocultural adaptation. Basically, the core components of an international student's sociocultural adaptation are language proficiency and communication competence, supplemented by effective intercultural interaction, which in turn constitute a part of the broader construct of sociocultural adaptation. Good proficiency in the target language is the basis of successful communication among members of different ethnolinguistic communities (Dörnyei & Csizér, 2005). In a study abroad context, better language fluency is seen to be directly related to more interactions with members of the host culture and as such leads to fewer sociocultural adjustment problems (Ward & Kennedy, 1993). Other studies suggest that a greater level of interaction with the host community would contribute to better competence in the host language (Clément, Noels, & Deneault, 2001). Ward (2004) concludes that target language skills help establish social support and interpersonal relationships, and these facilitate adaptation.

Meanwhile, academic adjustment of students studying abroad is also affected by issues related to language (Furnham & Alibhai, 1985; Holmes, 2000). In a recent review of empirical studies relating to international students' adjustment to their

academic achievement in English-speaking universities, Andrade (2006) concludes that difficulty with English language and culture is the primary factor affecting academic and sociocultural adjustment. It is plausible to propose that L2 proficiency is positively correlated to sociocultural/academic adaptation.

Relationship Between Linguistic Confidence in L2 and Cross-Cultural Adaptation

Past L2 research has attempted to find out why some individuals seek, whereas others avoid, L2 communication from psychological, educational, linguistic, and communicative approaches (Brown, 1991; Skehan, 1989; Tucker, Hamayan, & Genesee, 1976). Communication anxiety and perceived communication competence have been found as two of the strongest predictors of willingness to communicate (WTC) in many studies (Baker & MacIntyre, 2000; MacIntyre, Clément, Baker, & Conrod, 2001; McCroskey & Richmond, 1991). Communication anxiety is first introduced by McCroskey (1977), referring to the level of fear associated with actual or anticipated communication. In a given communication situation, it is the perceived communication competence, the belief that one can communicate effectively (McCroskey & Richmond, 1990), which will ultimately determine the choice of whether to communicate though the actual competence may also influence communication.

In the social context model (Clément, 1980; Clément & Kruidenier, 1985), frequent and pleasant contact with the L2 group is proposed to ultimately lead to variation in linguistic confidence, which, in turn, is associated with increased communication competence in the L2, increased identification with the L2 group, and increased psychological adaptation (Noels & Clément, 1996; Noels, Pon, & Clément, 1996).

Linguistic confidence is an important predictor of foreign language proficiency (Clément, Dörnyei, & Noels, 1994). This refers to one's confidence in being able to communicate in an adaptive and efficient way when using the second language (Clément & Bourhis, 1996). Due to the close interactive relationship between foreign language proficiency and sociocultural adaptation (Masgoret & Ward, 2006), and the direct effect of L2 confidence on WTC (MacIntyre, Dörnyei, Clément, & Noels, 1998), it is inferred that linguistic confidence will cast a critical effect on the degree of sociocultural adaptation. In a broader sense, such a relationship may also exist between linguistic confidence in L2 and academic adaptation.

Relationship Between Integrative Motivation and Cross-Cultural Adaptation

Educators, teachers, and parents in both Western and non-Western countries have long considered that motivation is an essential factor for successful SLA (Dörnyei, 2005; Noels et al., 2000, 2001). Language-related variables such as integrativeness

and motivation play very important roles in the cultural learning process and sociocultural adaptation (Masgoret & Ward, 2006). The underlying dynamics have been attributed to the fact that higher levels of integrativeness contribute to the prediction of higher levels of motivation (Masgoret & Gardner, 2003), and both are associated with high levels of intercultural contact (Masgoret & Gardner, 1999). Moreover, increased intercultural contact and satisfaction with that contact are supposed to be associated with fewer sociocultural difficulties (Ward & Kennedy, 1993; Ward & Searle, 1991).

Integrative motivation is a complex of attitudinal, goal-directed, and motivational attributes. It concerns a positive affective disposition toward the L2 community and the desire to achieve language proficiency in order to participate in and develop a sense of belonging to L2 community (Gardner & Lambert, 1972; Lightbown & Spada, 1999). In a recent study, Yu and Watkins (2008) found the integrative motivation was positively correlated with the L2 proficiency. Individuals with intensive integrative motivation will have regular contact or communication with members of the L2 group through using L2, which can ultimately improve their cross-cultural adaptation.

In summary, the paper identifies three important L2-related factors that are important to a good cross-cultural adaptation. It for the first time includes academic adaptation to measure cross-cultural adaptation. A recent study in the UK has found Mainland Chinese students display some distinctive characteristics (Li, Chen, & Duanmu, 2009). Considering the predominant proportion of Mainland Chinese students in Australia, a particular emphasis is given to this cohort. More specifically, the goals of the study are (1) if there are differences in sociocultural adaptation and academic adaptation between groups of students from Mainland China and other Asian countries, to compare L2 proficiency, integrative motivation, and linguistic confidence in L2 of Mainland and non-Mainland international student groups; (2) if there are corresponding differences in L2 proficiency, integrative motivation, and linguistic confidence in L2 between the two student groups; and (3) if possible differences in sociocultural/academic adaptation can be accounted for by the differences in the three L2-related factors between the two groups.

Method

Procedure and Participants

The study adopted quantitative research methods, based on a questionnaire survey conducted on a group of Asian international students studying on the main campus of the University of Sydney. Ethical approval was obtained from the human research ethics committee at the University. An invitation letter was sent to all faculties explaining the purpose and confidential and voluntary nature of this study. Four faculties (Arts, Economics and Business, Education and Social Work, and Engineering and Information) offered support and invited all Asian international

students to participate in the online survey established by the researcher through both e-mails and notice boards. It should be noted the Faculty of Economics and Business hosting the majority of international students in the university was one of the four faculties. Meanwhile, hard copies of the questionnaires were sent to classrooms where course teachers were willing to assist the distribution of the questionnaires. A souvenir was sent to students who completed the questionnaire. Data collection lasted from July to November in 2007.

A total of 261 Asian international students (178 females, 83 males) completed and returned the questionnaires, with 38 undertaking undergraduates, 197 masters and 22 doctors or PhDs, and 4 others. They aged from 18 to 40 ($M=25$, SD$=4.28$). Among them, 89 % were unmarried, and 76 % were from Mainland China. Residential time in Australia ranged from 1 month to 8 years (mean$=1.19$ years, SD$=1.38$ years). One hundred and ninety-eight students were from Mainland China, and 63 were from other Asian countries such as Thailand ($n=11$), Taiwan ($n=9$), Singapore ($n=6$), South Korea ($n=6$), Hong Kong ($n=6$), India ($n=5$), Indonesia ($n=4$), Japan ($n=4$), Malaysia ($n=4$), Bangladesh ($n=3$), Pakistan ($n=2$), Philippines ($n=1$), Republic of Korea ($n=1$), and Jordan ($n=1$).

Measures

The survey questionnaire consisted of affective measures in L2 motivation, sociocultural adaptation, academic adaptation, and perceived communication competence in L2.

L2 Proficiency Following Ying and Liese (1991), L2 proficiency was assessed by self-rating of the ability to listen, speak, read, and write English on a five-point Likert scale from "1=poor user" to "5=expert user."

Affective Variables in L2 Motivation The eight-item Mini-Attitude and Motivation Test Battery (AMTB) based on Hashimoto's (2002) study was employed to measure language-related affective variables in motivation. The Mini-AMTB uses a single-item indicator to measure each variable, also known as the "Guilford"-style instrument, which has been found to have acceptable convergent and predictive validity (Gardner & MacIntyre, 1993). The scale was set out on a five-point Likert scale to assess four aspects of L2 motivation: motivation (three items; one sample item: I would like to rate my desire to learn English as…); integrativeness (three items; one sample item: I would like to rate my attitude toward members of the Australian community as…); instrumental orientation (one item: I would like to rate how important it is for me to learn English for employment as…), which measures the utilitarian reason for learning English; and language anxiety (one item: If I were to rate my anxiety when speaking English, I would rate myself as…). There are several ways of scoring the constructs in AMTB. Gardner (2005) pointed out that researchers could either aggregate measures of constructs or aggregate the constructs depending on different research purposes. Take aggregates of the constructs

for example; Masgoret (2006) computed *integrative motivation* by aggregating integrativeness, motivation, and instrumental orientation. This study adopted Masgoret's method to measure *integrative motivation*.

Sociocultural Adaptation Sociocultural adaptation was measured using an adapted 29-item Sociocultural Adaptation Scale (SCAS) developed and refined by Ward and Kennedy (1999) based on the compilation of data across a large number of sojourner samples, including sixteen cross-sectional samples, four longitudinal samples, and one paired comparison between sojourning and sedentary samples. Ratings were made on a five-point Likert scale from 1 (extreme difficulty) to 5 (no difficulty). This measure tested how much difficulty students experienced in adjusting to the Australian society and culture.

Academic Adaptation It was assessed by the measure of the Persistence/Voluntary Dropout Decision (Pascarella & Terenzini, 1980) on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). This measure examined to what extent students interacted with their peer group and faculty.

Linguistic Confidence in L2 It is first introduced into L2 motivation research by Clément (1980; Clément, Gardner, & Smythe 1977), which refers to a confident, anxiety-free belief that the mastery of a L2 is well within the learner's means. *Perceived communication competence in English* was assessed by 12-item self-judgments of communication competence from MacIntyre and Charos (1996) on a five-point Likert scale from 1 (very incompetent) to 5 (very competent). Following Clément (1980), the study computed *linguistic confidence* by subsuming *perceived communication competence in English* together with a lack of *language anxiety* assessed by the Mini-AMTB.

Results

Preliminary Analyses

The absolute value of the skewness and kurtosis of all the tested variables was in the range of .004–1.522 and .076–1.698 for this sample. A value with less than 2 for skewness and 7 for kurtosis suggests a normal distribution of the variable (West, Finch, & Curran, 1995). Tests for normality showed that all the major variables did not significantly deviate from normality. The alpha coefficients of the major study variables ranged from 0.82 to 0.94 (see Table 27.1), suggesting they are sufficient for further analysis based on the criterion proposed by Nunnally (1978).

Differences in background variables were tested by Pearson's chi-square test. Results suggested that there were significant differences in residential time, age, and level of education except for gender and marital status between Mainland and other international student groups, which suggested that Mainland international students might be different from other international students in some aspects of background characteristics (see Table 27.2).

Table 27.1 Internal reliability, means, and standard deviations of the measures

Measures	Cronbach's alpha coefficients	Mean (SD)
Integrative motivation	0.82	27.03 (4.34)
Linguistic confidence	0.92	45.44 (9.10)
L2 proficiency	0.94	12.01 (3.44)
Sociocultural adaptation	0.94	105.93 (17.59)
Academic adaptation	0.83	40.70 (6.74)

Table 27.2 Background characteristics of the sample

	Mainland students		Other students		χ^2	p
	n	%	n	%		
Gender					3.43	0.064
Female	141	71.2	37	58.7		
Male	57	28.8	26	41.3		
Residential time (months)					21.14	0.000
1–12	132	71.0	15	34.9		
13–24	32	17.2	16	37.2		
25–36	11	5.9	4	9.3		
≥37	11	5.9	8	18.6		
Age (years)					39.50	0.000
18–22	41	20.7	15	23.8		
23–27	133	67.2	19	30.2		
28–32	16	8.1	16	25.4		
33–40	8	4.0	13	20.6		
Level of education					36.50	0.000
Undergraduate	18	9.1	20	31.7		
Master/MPhil	167	84.3	30	47.6		
Doctor/PhD	10	5.1	12	19.0		
Others	3	1.5	1	1.6		
Marital status					0.85	0.357
Unmarried	178	89.9	54	85.7		
Married	20	14.1	9	14.3		

Major Analyses

Independent sample t-tests were used to test for possible differences between Mainland and other international students in major study variables. Because of the relatively small sample size of other international students, an alpha of .05 (two-tailed) was retained to minimize type II error that could result in missing small group differences. Means, standard deviations, and results of t-tests appeared in Table 27.3. Significant differences were found on scores for linguistic confidence, $t(95.61)=2.70$, $p<0.01$; L2 proficiency, $t(83.59)=6.82$, $p<0.001$; sociocultural

Table 27.3 Independent sample t-tests of key variables between Mainland and other international students

Variables	Mainland students (n=198)		Other students (n=63)		
	Mean	SD	Mean	SD	t
Integrative motivation	3.94	0.63	4.02	0.61	0.87
Linguistic confidence	3.27	0.76	3.60	0.85	2.86**
L2 proficiency	2.83	0.73	3.72	0.92	7.64 ***
Sociocultural adaptation	3.55	0.55	3.96	0.68	4.84***
Academic adaptation	3.35	0.55	3.52	0.59	2.03*

adaptation, $t(88.53)=4.31$, $p<0.001$; and academic adaptation, $t(97.95)=1.94$, $p<0.05$. Mainland international students reported lower levels of linguistic confidence, L2 proficiency, as well as sociocultural/academic adaptation than other international students.

Hierarchical regression analyses were performed to determine the independent predictive effects of the background variables, L2 proficiency, integrative motivation, and linguistic confidence in L2. The hierarchical model allows the researcher to fit a regression model to the individual measurements while accounting for systematic unexplained variation (Raudenbush & Bryk, 2002). Data demonstrated that R was significantly different from zero at the end of each step. Four regression models were tested for Mainland student sample and other student samples, respectively, with dependent variables being sociocultural adaptation and the centered background variables, L2 proficiency, integrative motivation, and linguistic confidence in L2, and were entered as predictors in the models.

Table 27.4 reported the regression models estimated. Results showed that background factors had no significant predicative effect on sociocultural adaptation within either Mainland student sample or the other student sample. L2 proficiency and integrative motivation accounted for, respectively, 10 and 2 % of the total variance of sociocultural adaptation for the Mainland student sample, but bore no significant predictive role in the total variance of sociocultural adaptation for the other student sample. Linguistic confidence accounted for, respectively, 16 and 17 % of the total variance of sociocultural adaptation for Mainland and other student samples. In sum, linguistic confidence was found to be the strongest predictor of sociocultural adaptation for both student samples.

Similarly, Table 27.5 reported the regression models estimated with academic adaptation as the dependent variable. In the same way, background factors had no significant predicative effect on academic adaptation within either Mainland student sample or other student samples. L2 proficiency, integrative motivation, and linguistic confidence in L2 accounted for, respectively, 8, 8, and 7 % of the total variance of academic adaptation for the Mainland student sample, but they bore no significant predictive effect on academic adaptation for the other student sample.

Table 27.4 Hierarchical regression analysis of effects of demographic factors, L2 proficiency, integrative motivation, and linguistic confidence on sociocultural adaptation

Predictors	Mainland student sample				Other student samples			
	β	R^2	ΔR^2	F change	β	R^2	ΔR^2	F change
Step 1		.09	.09	3.68**		.17	.17	1.43
Residential time	.10				.08			
Age	−.11				−.16			
Level of education	.09				.09			
Gender	−.05				−.00			
Marital status	.11				−.19			
Step 2		.19	.10	22.08***		.17	.01	.03
L2 proficiency	.16*				−.27			
Step 3		.21	.02	3.97*		.27	.11	4.89*
Integrative motivation	.13*				.27			
Step 4		.37	.16	46.35***		.44	.17	9.70**
Linguistic confidence	.45***				.54**			

Table 27.5 Hierarchical regression analysis of effects of demographic factors, L2 proficiency, integrative motivation, and linguistic confidence on academic adaptation

Predictors	Mainland student sample				Other student samples			
	β	R^2	ΔR^2	F change	β	R^2	ΔR^2	F change
Step 1		.03	.03	1.26		.12	.12	1.01
Residential time	−.04				.16			
Age	−.04				−.08			
Level of education	.07				.06			
Gender	.10				.00			
Marital status	.09				.16			
Step 2		.12	.08	16.63***		.21	.09	3.83
L2 proficiency	.15*				.17			
Step 3		.20	.08	17.59***		.29	.08	3.60
Integrative motivation	.28***				.25			
Step 4		.27	.07	17.88***		.33	.04	1.94
Linguistic confidence	.30***				.26			

Conclusions

Differences in Study Variables Between the Two Student Groups

This study found significant differences in all major study variables but integrative motivation. Mainland international students were likely to show lower proficiency in English than other international students. Such a finding was consistent with a previous study conducted in the UK by Li and his colleagues (Li, Chen, & Duanmu, 2009). There were three possible explanations. First of all, Mainland student sample

indeed had lower English proficiency than other student samples. Otherwise, their actual levels of L2 proficiency were similar with other international students, but they tended to underestimate their English proficiency because they seemed to lack language confidence, which could be confirmed by the significantly lower L2 confidence of Mainland international students in comparison with other international students. Second, the context of the study might be another reason for the above findings. Pan and others (Pan, Wong, Joubert, & Chan, 2007) found that Chinese international students in Australia experienced higher English deficiency than Mainland students in Hong Kong, and cultural fit theory (Ward & Kennedy, 1993) was used to explain the difference because Mainland students shared more in culture with Hong Kong people than Australian. Although cultural fit theory was not applicable to the present study, it seemed that in an English-speaking country like Australia, Mainland Chinese students might experience more L2 problems than others and their poorer English proficiency explained their relatively lower cross-cultural adaptation in comparison to other international students. Third, over half of total international students are studying in the management and commerce disciplines, with 67 % of the Chinese student cohort of 58,588 students undertaking degrees in these subject areas (Bradley et al., 2008). The University of Sydney was not an exception. Almost half of the participants were from the Faculty of Economics and Business, and more than 76 % of them were from Mainland China. In such a circumstance, it was very easy for Mainland students to mingle with and cling to their compatriots in both inside and outside the classrooms, which in turn led to less contact with host people and more problems in terms of social and academic integration into local community. Nevertheless, deep interviews and focus group discussion were necessary to detect the interrelationships between various factors to clarify the complex causations for further research.

Linguistic Confidence in L2 as a Major Predictor of Cross-Cultural Adaptation

Linguistic confidence in L2 was found to be a critical predictor of sociocultural adaptation in both student groups and also a significant predictor of academic adaptation in the Mainland student sample. Previous research documented that increased linguistic confidence in L2 was associated with increased identification with the L2 group and increased psychological adaptation (*cf.* Noels et al., 1996; Noels & Clément, 1996), but there was no empirical evidence on the relationships between linguistic confidence in L2 and sociocultural/academic adaptation. This study suggested that linguistic confidence in L2 played the strongest predicting role in explaining cross-cultural adaptation among L2-related factors such as integrative motivation and L2 proficiency. Self-confidence with using English as a second language was related to linguistic acculturation and might also be related to cultural acculturation in certain contexts (Dion, Dion, & Pak, 1990; Pak, Dion, & Dion, 1985). This may explain why linguistic confidence was so crucial for a good sociocultural adaptation of all international students sampled.

The ability to communicate with fellow students was essential to transcultural adaptation in an academic setting (Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996). Linguistic confidence in L2 was found as the strongest predictor of WTC in many studies (*cf.* Baker & MacIntyre, 2000; MacIntyre et al., 2001; McCroskey & Richmond, 1991). Therefore, it was through communication that international students learn to relate to the learning environment and was able to fulfill various academic needs. Consequently, harmonious academic adaptation occurred when international students were capable of communicating with the L2 group (Kim, 1988), which was facilitated by a strong confidence in L2. However, there was no significant predicting role of linguistic confidence in academic adaptation for other student samples. The small sample size of international students from other countries should be taken into consideration when the result was interpreted, and therefore future researchers might keep this in mind if a comparison study was to be conducted. Another possible explanation for this result was there were other variables such as personality and learning strategies that might affect academic adaptation of those non-Mainland students. And this could be another research line for future studies.

Integrative Motivation as a Significant Predictor of Cross-Cultural Adaptation

The above findings suggested that integrative motivation played a significant role in the process of cross-cultural adaptation in the Mainland student sample. It turned out to be a significant predictor of sociocultural/academic adaptation of Mainland students. According to Dörnyei (2003), the core aspect of integrative disposition lay in identification with the L2 community psychologically and emotionally. For the international students in this research, the L2 community was mainly the local community off-campus and the faculty staff and their peer classmates on-campus. A high degree of integrative motivation would directly determine a high degree of interaction with local people and faculty members and classmates. And such a high level of interaction could enhance sociocultural adaptation (Yu, 2010) and academic adaptation (Tinto, 1993; Yu, 2010). Therefore, we could conclude that it was integrative motivation, a strong desire to learn L2 and identify with L2, which determined a good cross-cultural adaptation rather than L2 proficiency. It should be noted that such findings was not found in other student samples, which indicated that such students might be studied from other perspectives such as their adjustment experiences and previous learning experiences.

Implications and Limitations

Difficulties always arose from the beginning of the cultural contacts, and frequent and pleasant contact with the L2 group was proposed to ultimately lead to variation in linguistic confidence (Noels et al., 1996; Noels & Clément, 1996), which, in turn,

contributed to a satisfactory adaptation of international students in a foreign country. The aforementioned findings suggested that it was essential for the host institutions and students supporting offices such as international office and students counseling program to know what kind of problems newly arrived international students were likely to encounter on campus and in daily life. Then, they could organize more welcoming sociocultural events at the beginning of new academic years to encourage all international students to actively participate in cross-cultural adjustment. For example, orientations of the campus and of the city and hands-on workshops would help newly arrived international students quickly adapt themselves to the alien environment of the campus and unique academic and study challenges.

Considering the crucial role of linguistic confidence in English in the process of cross-cultural adaptation, language support programs such as face-to-face L2 communication outside classrooms and proofreading services should be valued and strengthened, especially for students from Mainland China (G. Li et al., 2009). In addition, faculties or departments could pair international students with local students in sociocultural and academic activities so as to increase more cultural contacts, which would help international students to release their language anxiety and improve their confidence in communicating in English. Moreover, in order to create a more diversified classroom, faculty should take ethnicity into consideration when recruiting international students for a certain subject.

The expectation-reality discrepancy approach revealed that expectations about cross-cultural difficulties were related to actual difficulties in sojourner adaptation (Searle & Ward, 1990). Here, the Mainland student group reported more sociocultural/academic problems than their counterparts, which might be attributed to there being more discrepancies between their expectation and the reality of sociocultural/academic problems. Making careful psychological and academic preparation for their overseas study and life was a good advice that international students should follow. More specifically, Jacob and Greggo (2001) suggested that international students should know their problems, be ready to develop friendships with diverse peers, understand nonverbal behavior, be ready to communicate with teachers, and be ready to be involved in the university community.

Limitations of the current study should be noted. Due to ethical issues, the survey was conducted in only one university in Australia, and generation of the findings to all the Asian international students in Australia should therefore be interpreted with caution. This study was cross-sectional in nature, which did not allow a test of the causal predominance of the variables or changes over time because time precedence was needed for both tests. In order to address these limitations, future studies should be designed to be longitudinal because such data were important for establishing causal relationships (Bong, 1996).

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Chapter 28
Basic Psychological Needs and Flourishing in Filipino University Students

Belen Mesurado, Maria Guadalupe C. Salanga, and Nino Jose Mateo

Abstract Flourishing is a concept in positive psychology that is focused on growth and continued improvement (Fredrickson and Losada, Am Psychol, 60: 678–689, 2008). Using the Self-Determination Theory (Deci and Ryan, Physchol Inquiry 11:227–268, 2000), the experience of flourishing involves meeting and satisfying the basic psychology needs of autonomy, competence, and relatedness. The first aim of this study is to examine how autonomy, competence, and relatedness (the three basic psychological needs) are related to flourishing among Filipino undergraduate students. The second aim is to examine the relative importance of basic psychological needs in predicting flourishing. Filipinos students completed the following measures: (1) Basic Psychological Needs Scale (Deci and Ryan, Physchol Inquiry 11:227–268, 2000), and the (2) Flourishing Scale (Diener et al., Soc Indicat Res 39:247–266, 2009). Results from the regression analysis reveal that competence, autonomy, and relatedness predict flourishing. Dominance analysis reveals that relatedness is the best predictor of flourishing. These findings suggest that learning in the Philippine context takes on more social features, with the satisfaction of relatedness needs extending to learning contexts. Findings are further discussed in the context of the shared identity model of Filipino psychology.

Keywords Motivation • Flourishing • Filipino students

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Introduction

In the last decades the concern on mental health of undergraduate students has increased (Low, 2011). College students well-being is affected by proximal variables such as academic factors (e.g. examination, achievement, and course characteristics, type of feedback, and reward), social factors (e.g. instructors, family members, and peers), and internal factors (e.g. self-reported stress, student characteristics). A host of other factors such as the physical environment, academic associations, and internship opportunities also impact college students' well-being (Van Etten, Pressley, McInerney, & Liem, 2008).

Flourishing and Basic Psychological Needs in Education

It is well known that researchers have focused their attention on mental illness and its symptoms, rather than the presence of mental health or wellbeing or what Keyes (2002) calls "flourishing". Flourishing is a concept that focuses on positive attributes and experiences that would lead to growth and resilience (Fredrickson & Losada, 2008). Specifically, flourishing is state of optimal and mental health wherein the individual is able to evidence peak performance and experience positive emotions. Keyes (2002) views flourishing as featuring emotional, psychological, and social well-being traits (see Keyes 1998). Emotional well-being is conceptualized as the presence or absence of positive feelings about life, thus including a hedonistic perspective about happiness (p. 208). Psychological well-being is the individual's perception of fulfilment in personal life (2002, p. 208). Finally, social well-being deals with the relationship between individuals and society—individuals feel they belong to and are accepted by their communities; they perceive themselves as contributing to society (2002, p. 209) or their academic community, in the case of students. The experience of flourishing connotes a more holistic and stable form of well-being distinguished from the concepts that describe current moods such as happiness and life satisfaction. The four components of flourishing (goodness, generativity, growth, and resilience) consider long-term impact on one's mental health and wellbeing.

Several studies have shown that students are more likely to be flourishing than the general population (Low, 2011). Attending class, doing homework, and collaborating with classmates on projects are ordinary activities for undergraduate students. As adolescents spend much of their day performing activities individually and with various peers, the university allows for students to experience flourishing and to flourish. Previous studies in USA on high school students (Keyes, 2006) and in South Australian students (Venning, Eliott, Kettler, & Wilson, 2013) found that about 40 % of students were flourishing, about 50 % were moderately mentally healthy, and about 10 % were languishing (absence of mental health); however, in South Korean students only 8 % fit the categorical diagnosis of flourishing.

Although there are several studies that explored the levels of flourishing and its connection with well-being in samples of high school and undergraduate students, there are a few that focused on determining the variables that promote flourishing in student samples (Keyes, 2013).

The Basic Psychological Needs subtheory of Self-Determination Theory postulates that the individual is able to experience autonomous, motivated, and engaged performance in a specific life domain if relatedness, competence, and autonomy needs have been met (Ryan & Deci, 2000). Relatedness needs are met through secure relationships with others. Relatedness, while not the most important need to be satisfied for individuals who are intrinsically-motivated, serves as an important need for those who have more extrinsic sources of motivation. Competence is likened to self-efficacy. If an individual is able to satisfy needs for competence, he is aware that he has the capacity to complete a task and will be able to see through its completion. Students who scored high on self-efficacy reported higher academic aspirations, spent more time in homework, and primarily associated learning activities with emotional wellbeing than students who scored low on self-efficacy (Bassi, Steca, Delle Fave, & Caprara, 2007). Finally, autonomy needs are met when one sees that actions are self-directed and one is completing a task out of his own volition (Baard, Deci, & Ryan, 2004; Ryan & Deci, 2000). Autonomy needs could be important for students because the election of a career and university style life could be one of the first personal autonomy elections for an adolescent. Individuals aim to satisfy the needs of relatedness, competence, and autonomy. An individual who is able to satisfy these three basic psychological needs is able to perform well and function at an optimum level. As studies have shown, the three basic psychological needs are associated with different aspect of wellbeing such as, engagement, general self-esteem, and anxiety in a positively and negatively way. The university becomes a context where students could find various means of satisfying these needs. Therefore, they could be a good predictor of flourishing in undergraduate Filipino students.

Culture in Education

Markus and Kitayama (1991, 2010) argue that Western cultures are distinguished in the belief on the autonomy of the self. In contrast, several non-Western cultures are characterized by interdependence or connectedness of human beings to one another. The aforementioned cultural characteristics influence the meaning attributed to education and subjective experience associated with it. In Asian societies, connection, conformity, and interdependence are highly idealized personal traits, while Americans place far greater value on qualities such as independence, individuality, and self-assertion.

The role of social and contextual factors becomes ever more salient in countries outside of the North America. The impact of culture in educational processes and

outcomes has been documented in various studies from scholars in Asia (Bernardo, Salanga, & Aguas, 2008; King, McInerney, & Watkins, 2012; King & Watkins, 2011; Liem & Nie, 2008). In the study of achievement goals, Asian students have been found to maintain socially-oriented academic goals. This suggests that parents and peers play a role in the definition and construction of academic goals. This type of goal is in sharp contrast to individually-oriented goals. Individually-oriented goals hone in on the self and its autonomous nature (Yu & Yang, 1994 in Bernardo, 2008). In the Philippines, socially-oriented motivations take on two forms, parent-oriented and teacher-oriented (Bernardo, 2008).

If goals take on a different dimension in countries outside of the West, the assumption is that psychological needs are also met through varied means. An example one could look into is personal choice. Personal choice may be more nuanced in cultures that emphasize collectivist values. Miller, Das, and Chakravarthy (2011) found that while personal choice is universal, the factors included in making decisions differ based on culture. In contrast to their American counterparts, Indian students' had internalized the social expectations of significant others in the decisions they make. With this, they are exercising agency and, at the same time, cognizant of social expectations. The influence of significant others is seamlessly woven into their consciousness and daily life (Miller, 1984). They are a part of a culture that emphasizes the collective and to regard and respect the influence of significant others (Markus & Kitayama, 2010; 1991).

Several studies have established that satisfaction of basic psychological needs of competence, autonomy, and relatedness leads to positive outcomes such as psychological well-being and academic achievement (Diener et al., 2009). This appears to be sensible assumptions as the ability to make choices volitionally and have a sense of self-efficacy are highly valued in the academic setting. Given how social and environmental factors significantly influence the fulfilment of the basic psychological needs, however, one could assume the importance of culture in the relationship between basic psychological need satisfaction and flourishing.

Asian countries are classified more oriented towards collectivism than individualism. The Philippines is considered a collectivistic society (Hofstede, 1980). Filipinos have been found to endorse collectivist values. This suggests that Filipinos give greater importance to relationships and a sense of belongingness than to personal achievements. Greater emphasis is given to maintaining relationships than asserting personal autonomy and individual choice. This is reflected as well in the indigenous Filipino concept of *Kapwa*, or shared identity, where individuals see themselves not as separate from other individuals, but as part of the collective (Enriquez, 2008). Studies on the Filipino learners appear to support this assumption. As mentioned earlier, Filipinos were found to espouse social goals on top of their mastery and achievement goals. This chapter takes off from the same argument and hypothesizes that among the three psychological needs, the satisfaction of relatedness needs will be the most significant predictor of flourishing in Filipino university students.

The Present Study

The aim of this study is to examine how autonomy, competence, and relatedness (the three basic psychological needs) were related to flourishing among Filipino undergraduate students. We also wanted to examine the relative importance of three basic psychological needs through the use of causal dominance analysis (CDA), a statistical technique designed to help determine a predictor's importance. It allows researchers to statistically decompose the total predicted variance of the regression model according to the importance of each predictor (Budescu, 1993).

Method

Participants

One hundred seventy six (176) participants from a private university in the Philippines completed measures of psychological needs and flourishing. The sample of university students was composed of 93 males and 79 females with a mean age of 17.54 years (SD = 1.32). The data from this study is part of a larger study that examined cross-cultural variances in educational variables and outcomes in samples of Filipino and Argentinian students.

As part of the larger study the first author ensured that all ethical guidelines were met. Consent for this project was obtained at multiple levels. First, the researchers informed the heads of the universities of the project. They were provided with a copy of the research proposal and the characteristics of the research were explained. They were told that participation will be voluntary and anonymous. Once permission was received, students were invited to participate. The students were informed of the purpose of the study and were reminded that participation is voluntary and that they can refuse to take part in the study with no consequence. Students did not receive any compensation to participate in the study.

Instruments and Data Analysis

Participants completed a questionnaire set with the measures of flourishing and basic psychological needs. The participants also completed a demographic questionnaire that included questions about their age, gender, year level, and degree program.

The Flourishing Scale This scale measures self-perceived success in important areas such as self-esteem, purpose, and optimism. The scale includes 8-items, each item is answered on a 1–7 scale that ranges from strong disagreement to strong

agreement. All items are phrased in a positive direction, for instance: "I lead a purposeful and meaningful life". Scores can range from 8 (strong disagreement with all items) to 56 (strong agreement with all items). High scores signify that respondents view themselves in positive terms in important areas of functioning (Diener et al., 2009). A confirmatory factor analysis was carried out to study the validity of this instrument to measure the flourishing in Filipino students and the results indicated adequate fit between the data and the original model with a unique factor: $\chi^2(20)=62.70$, $p<.001$; $\chi^2/\mathrm{d}f=3.13$; CFI$=.92$, AGFI$=.90$; TLI$=.90$; RMR$=.06$.

The Basic Psychological Needs Scale This scale is a measure of needs satisfaction in life. Respondents are made to complete 21 items using a 7-point Likert scale. This is a measure of the three psychological needs of relatedness (e.g. "I really like the people I interact with"), competence (e.g. "People I know tell me I am good at what I do"), and autonomy (e.g. "I feel like I am free to decide for myself how to live my life"; Deci & Ryan, 2000). Exploratory factor analysis was carried out to test the validity of the scale in Filipino students, the KMO was .83. Principal components analysis with varimax rotation was employed. For the definitions of factors only the variables with a factor weight of .30 or more were included (Norman & Streiner, 1994). Cattell's scree test is a graphical method that was employed to determine the number of factors. The exploratory factor analyses of items showed three factors, similar to the ones proposed by Baard, Deci and Ryan (2004), explaining 44.46 % of the variance.

Statistical Procedure

Correlations and lineal regressions were used to examine relationships between three dimensions of basic psychological need (autonomy, competence, and relatedness) and flourishing in Filipino students. Next, we used causal dominance analysis to check the relative importance of each of the predictors.

Results

Preliminary Analyses

Table 28.1 shows the descriptive statistics for the variables examined in this study.

Preliminary results indicate that most of the scales have acceptable internal consistency scores. Cronbach's α for flourishing was .88 and .82 for basic psychological needs. However, the subscales for the basic psychological needs of autonomy and competence have low reliability coefficients (see Table 28.1). We could not compare these results with previous studies because the authors reported only Cronbach's alpha reliability for total items (Baard, Deci, & Ryan, 2004).

Table 28.1 Correlations between basic psychological needs and flourishing

Correlations between basic psychological needs and flourishing	Cronbach's α	M	SD	Autonomy	Competence	Relatedness
Autonomy	.55	4.32	.73	–		
Competence	.55	4.56	.73	.52***	–	
Relatedness	.76	5.17	.82	.55***	.55***	–
Flourishing	.88	44	6.63	.48***	.58***	.62***

Note: *** $p < .001$

Table 28.2 Basic psychological needs predicting flourishing

Basic psychological needs predicting flourishing	Basic psychological needs	B	T	R^2
Flourishing	Autonomy	.15	2.3*	.48
	Competence	.28	4.00***	
	Relatedness	.39	5.68***	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Predicting Flourishing of Students Using Regression Analyses

A linear regression analyses was performed to test the relationship of basic psychological needs and flourishing. Table 28.2 shows a summary of the regression analyses. The prediction of basic psychological need for flourishing was significant for the Filipino students, $F(3, 171) = 51.79$; $p ≤ .000$. The model explained 48 % of the variance. We found that autonomy, competence, and relatedness have a positive relationship to flourishing.

Causal Dominance Analyses (CDA)

After conducting multiple regression analyses, we conducted causal dominance analysis (CDA), which aims to give a more accurate picture of the relative strength of each predictor (Azen & Budescu, 2003). Table 28.3 shows the results of the causal dominance analyses for the Filipino students. Among the Filipino students, relatedness was the most important predictor of flourishing (45 % of the R^2) followed by competence (35 % of the R^2) and autonomy (20 % of the R^2).

Table 28.3 Differential impact of autonomy, relatedness, and competence on flourishing

Variable		Contributions of the variables		
	R^2	X1	X2	X3
		0.22	0.33	0.37
X1 = Autonomy	0.22		0.15	0.20
X2 = Competence	0.33	0.04		0.12
X3 = Relatedness	0.37	0.05	0.08	
X1, X2	0.37			0.01
X1, X3	0.42		0.05	
X2, X3	0.45	0.02		
X1, X2, X3	0.47			
Decomposition of R^2		0.095	0.165	0.21
Percentage of predicted variance		20.21	35.11	44.68

Discussion

The aim of this study was to examine how basic psychological needs (autonomy, competence, and relatedness needs) were related to flourishing in Filipino university students. The results confirmed the hypothesis that the three basic psychological needs of relatedness, competence, and autonomy predict flourishing. Specifically, this state of positive mental health is best predicted by relatedness in Filipino university students.

The findings further corroborate previous empirical work on the social dimensions of learning in Asian student samples. Specifically, for Asian students, there is the need to recognize the socially oriented nature of achievement motives (Yu & Yang, 1994 in Bernardo, 2008). This is also true for the Philippines where achievement motives have a social orientation (Bernardo, 2008). King, Ganotice, and Watkins (2014) found in samples of Filipino students that social affiliation and concern goals have a positive relationship with deep learning and self-regulation. The significant predictive value of satisfying relatedness needs on the experience of flourishing confirms previous empirical findings on the key role played by social relationships in Asian settings and in Filipino students (King, McInerney, & Watkins, 2012; King & Watkins, 2011; Ouano & Pinugu, 2013; Bernardo, Salanga, & Aguas, 2008; Liem & Nie, 2008). In addition to confirming theoretical claims about basic psychological needs and their role in optimal functioning (Ryan & Deci, 2000), the findings run consistent with recent cultural conceptualization of happiness and well-being in different cultures. Considered to be a collectivistic and interdependent society, Filipinos are hypothesized to give greater emphasis to relationship and social harmony (Uchida & Ogihara, 2012; Uchida, Norasakkunkit, & Kitayama, 2004).

If this theorizing is applied in the educational domain, the values and norms espoused by the cultural context will also play a dominant role in the lives of students. In the seminal theorizing of Enriquez (2008) about Filipino psychology,

social relationships play a central role in the construction of the self and others. In Filipino psychology, there is an emphasis on shared identity (*kapwa*). Interpersonal relationships are valued and are given primacy. Behaviours that are associated with maintaining interpersonal relationships are seen as important. Being interpersonally sensitive (*pakikiramadam*) and showing propriety in social contexts are important in maintaining harmonious relationships (Enriquez, 2008).

The cultural context promotes interdependence and regard for significant other is foregrounded in daily life. All in all, the predominantly collectivist and interdependent orientation of Filipino culture is conducive to and cultivates relatedness needs.

Relatedness needs seem to be given greater primacy with Filipino university students. They are given more salience as this is the time that they experience the joys of romantic relationships and they contemplate as well to more stable marital relationships. This does not imply that needs for competence and autonomy are not important. Filipinos university students are constantly exposed to situations where they are being evaluated on their capabilities. With this, the salience of fulfiling need for competence results to the prospect of growth and movement towards optimal functioning. The fulfilment of autonomy needs is also of key importance, with university students being presented with more opportunities to make independent decisions, However, the findings of Miller and colleagues (2011) on the internalization of social expectations may be taken into view when describing and accounting for the role of autonomy in predominantly interdependent cultures. While the experiences of adolescents in university allow them a taste of independence, parental directives and interdependent values may be activated when they make decisions. However, this assertion is an extension of the conclusions of Miller and colleagues (2011), and has yet to be tested empirically in a sample of Filipino university students. In comparison to the other psychological needs, autonomy was not the strongest predictor flourishing. This may suggest the need to further explore and examine how autonomy is constructed and operates in interdependent cultures and during specific developmental phases.

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Chapter 29
Stress, Positive Psychological Resources, and Mental Health of Migrant Chinese Postgraduate Students in Macau

Ya Ting Dong, Allan B.I. Bernardo, and Charles M. Zaroff

Abstract   The number of postgraduate students from Mainland China who study in foreign universities has increased significantly in the past decade. Some of these Chinese postgraduate students opt to study in other Chinese countries and cities, like Macau, partly with the belief that doing so would require less cultural adjustment. Our chapter inquires into factors related to self-reported mental health in a sample of Mainland Chinese postgraduate students in Macau, and the results indicate that higher levels of acculturative stress (but not academic stress) are associated with poorer mental health – results that call attention to the need to conceptualize cultural experience and adjustment beyond notions of ethnicity and race. The results also show how psychological resilience is associated with better mental health. The results are discussed with references to the importance of culture in understanding Asian learners well-being.

In the past decade, Mainland Chinese students had comprised the largest group of international students overseas (Li & Bray, 2007). More than ever before, increasing numbers of Chinese Mainland students attend foreign universities for undergraduate and postgraduate studies, and the target universities include those in other Chinese cities like Hong Kong and Macau. In the University of Macau, for example, the number of postgraduate students increased from 1,914 in 2010 to 2,588 in 2012 (a 35 % increase in just 2 years), and 80 % of these are from Mainland China. Research indicates that postgraduates studying overseas were at high risk of suffering from mental health concerns such as depression (Constantine, Okazaki, & Utsey, 2004), and thus, postgraduates studying overseas have urgent needs to seek for counseling service such as marriage and family therapies, career counseling, and

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stress management. Numerous studies have noted the adjustment problems of Mainland Chinese students in United States or United Kingdom (e.g., Wang & Byram, 2011; Zhou & Todman, 2009). In this regard, one of the reasons Chinese students give for choosing to study in Macau is that it is still part of China, and as such the "overseas" adjustment required would be minimal. However, very few researchers have paid attention to Mainland Chinese students in Macau, and there been hardly any focus on the mental health concerns that these students might have. In this chapter, we survey a sample of Mainland Chinese postgraduate students in Macau and explore how their self-reported mental health is associated with various forms of stress and of psychological resources for coping with stress.

Similar to Hong Kong, Macau is viewed as both domestic and external by the Mainland Chinese, and as Chinese institutions with international standards and global linkages (Li & Bray, 2007). However, Mainland Chinese postgraduates have to face different stressors from the students in other areas of greater China and foreign countries because Macau is not a typical city for study overseas like Hong Kong, United Kingdom, and United States. For one, the graduate schools in Macau are not presently highly ranked in international listing, and Mainland Chinese postgraduates typically focus on gaining admission in highly ranked universities because degrees from these universities will make the graduates more attractive to employers in Mainland China. Thus, Mainland Chinese students with postgraduate degrees from Macau would be less competitive for jobs when they return to Mainland China compared to those with degrees from highly ranked universities in Hong Kong, United Kingdom, and United States. This knowledge is a possible source of stress for postgraduate students who choose to study in Macau.

In this study, we focus on six important psychological variables that may play an important role on the mental health of Migrant Chinese postgraduates in Macau. We realize that the range of potential predictors of mental health of any group is quite wide, but for this study, we limited our investigation to a subset of stress-related factors that relate to cultural adjustment and academic requirements, and also consider a set of positive psychological resources that are known to buffer the effects of stress on well-being.

Correlates of Mental Health

Graduate Stress

Academic life and academic requirements are typically the major sources of stress for university students, as most of the activities revolve around their university experience. Students' postgraduate studies and experiences, however, create sources of stress different from those experiences by students in primary, secondary, and even undergraduate university education. This is because the structure of activities and requirements of postgraduate education are qualitatively different from the earlier experiences in the more basic educational systems. For students doing postgraduate studies overseas, their academic life are likely to involve various sources

of stress that relate to their own self-expectation regarding their academic requirements, in addition to the lack of their normal social supports, having to learn a new language, and a host of other divergent cultural experiences that they would need to adjust or adapt to (Constantine, Anderson, Berkel, Caldwell, & Utsey, 2005). Moreover, many Chinese students studying overseas have to deal with financial issues, and if they get their financial support from doing research or teaching assistantships, they have to deal with the need to balance this work with their academic requirements like coursework and their own research (Lu, 1998). In an attempt to capture the unique aspects of stress experienced by postgraduate students, Rocha-Singh (1994) proposed three broad dimensions of stress: academic stress, environment stress, and family/monetary stress. Interestingly some research suggests that postgraduate students at the doctoral level report less academic stress than masters students (Hull, 1978), and that may be because PhD students have had more experience in dealing with the stressors in postgraduate programs. There may also be sex-related differences in academic stress; a study of Chinese students in Taiwan revealed that female students reported more academic stress than their male counterparts (Yang, 2010).

Acculturative Stress

International students commonly experience variable challenges when they strive to adapt themselves to other cultures; as such, overseas students as a group is viewed as one at a high risk of poor mental health (Joiner & Walker, 2002). Acculturative stress is defined as the difficulties and conflicts derived from the acculturation experience of migrant population (Joiner & Walker), and this also applies to migrant students. Kim et al. (1997) found that Chinese migrant college students studying in the U.S. had more stressors and experienced higher levels of stress compared to those from Japan and Korea. It was suggested that for the international students from China, their acculturative stressors could be classified into two categories: language difficulties and psychosocial adjustment.

Regarding language difficulties, for Chinese students studying in the English speaking countries, self-perceived English proficiency was a strong predictor of students' stress related to social and cultural adaption (Wan, Chapman, & Biggs, 1992; Yeh & Inose, 2003). English proficiency was even identified as the greatest concern by international students in the USA (Swagler & Ellis, 2003). Most of Chinese migrant college students have difficulties in oral or listening English or have no confidence to communicate through English (Swagler & Ellis, 2003; Xu, 2002). Although English is not the dominant nor even one of the official languages in Macau, English is the medium of instruction in the leading university in Macau, thus, it is possible that self-perceived English proficiency would also be considered a source of stress among Chinese students in Macau.

We should note that outside the classes in the university, the commonly used language in Macau is Cantonese, which is one of major Chinese languages but is quite distinct from Mandarin and the other major Chinese languages (i.e., the differ-

ent Chinese languages are not always mutually intelligible). Anecdotally, many Mainland Chinese students do not have high levels of proficiency in Cantonese either (except those who come from Guangdong Province), and thus oral and written communication within the Cantonese-speaking Macau is sometimes challenging for them. In this study, we consider proficiency in both English and Cantonese as possible sources of acculturative stress that would be associated with poorer mental health of Chinese postgraduate students in Macau.

Regarding psychosocial adjustment, there are varied and important cultural issues such as social contact, discrimination, homesickness and loneliness, cultural difference, and lack of independence. These issues are particularly significant for Chinese people who are from a collectivist culture that emphasizes interpersonal relationships (Constantine et al., 2004). Shen and Takeuchi (2001) noted that challenging acculturation process may lead to depression or suicide ideation within the subgroup of international students. Barrett, et al. (2003) also indicated that anxiety in migrant students is likely to be have been caused by difficult acculturation processes.

It may seem odd that Mainland Chinese students would experience acculturative stress in a city that is also Chinese. Yet there is much anecdotal information about Mainland Chinese students having very limited social contacts with the Macau Chinese community, or even their Macau Chinese classmates in university. There are also anecdotal reports of feeling homesick and lonely, and of experiences of discrimination from Macau Chinese. Thus, it is important to verify whether acculturative stress is experiences by Mainland Chinese postgraduate students in Macau, and whether this form of stress is related to their mental health.

Sense of Belonging

We now consider some personal psychological resources that could help Mainland Chinese postgraduate students deal with the various stressors their experience while studying in Macau. Sense of belonging is defined as "personal experience of engagement in a system or environment so that people feel themselves as an integral part" (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992, p. 173; see also Hagerty, Williams, Coyne, & Early, 1996). Among students (not migrant students), a sense of belonging positively affected academic engagement and performance (Osterman, 2000). And among migrants (not students) sense of belonging was associated with lower levels of psychological distress (Nesdale, Rooney, & Smith, 1997). In the case of Mainland Chinese students in Macau, sense of belonging means that they feel themselves as an integral part of Macau society or of their university community in Macau. Even though Mainland China and Macau share many educational and cultural values, there are significant distinctions between the two cultures such as different languages, life style, social norms, political systems, all of which may have an effect on Mainland Chinese students' sense of belonging in

Macau. Thus, it is important to inquire into whether this variable can contribute to better mental health of Mainland Chinese postgraduate students in Macau.

Resilience

High-risk populations, including migrant populations, often face challenges in maintaining physical and mental health and also often show signs of psychological disturbances. In this regard, resilience, which is defined by Grotberg (2003) as individual traits that help individuals to successfully adapt to a varied range of stressors and adverse conditions in life, is often discussed as an important variable that contributes to positive mental health of migrant students. Resilience has a positive effect on a person's mental health because it focuses on individuals' strength, resources, and competences rather than the things like stressors (Michaud, 2006). Because of different levels of resilience, international students with high levels of resilience may not experience poorer mental health compared to local students, even if they face acculturative stressors. Indeed, Wong et al. (2003) found that Mainland China teenagers studying in Hong Kong are mentally healthier than local youth, and they attributed this to resilience and other social competencies that Mainland Chinese youth possess. As such, resilience would also be good to consider as a contributor to Mainland Chinese postgraduate students' mental health.

Meaning of Life

Aside from resilience, meaning of life is another positive concept which facilitates the migrant students' adaption (Grotberg, 2003; Masten & Reed, 2002). Meaning of life is defined as "the cognizance of order, coherence, purpose in one's existence, the pursuit and attainment of worthwhile goals, and an accompanying sense of fulfillment" (Recker & Wong, 1988, p. 221). Wong (1998) proposed seven kinds of meaningful life resources: achievement, religion, relationship, self-transcendence, self-acceptance, intimacy, and fair treatment. A few studies suggested that the meaning of life not only attaining of life meaning brings more positive affections and life satisfaction, but also supports the populations who are suffering from challenging stressors, such as cancer survivors (Fleer, Hoekstra, Sleijer, Tuinman, & Hoekstra-Weebers, 2006) and caregivers (Konstam, Holmes, Wilczenski, Baliga, Lester, & Priest, 2003). Meaning of life of Mainland Chinese students could be one of those protective factors to help them maintain good mental health, even as they experience various forms of stress.

To summarize, in this study we explored mental health of Mainland Chinese postgraduate students in Macau by using a self-report measure on their general mental health. We inquired into how self-reported mental health is related to two sets of factors: sources of stress and personal positive resources. We predicted that

the two types of stress (i.e., graduate level academic stress and acculturative stress to be associated with poorer self-reported mental health, but the personal positive psychological resources of sense of belonging, resilience, and meaning in life would serve as protective factors that would be associated with better mental health.

Method

Participants

The original sample consisted of 170 migrant postgraduate (masters and doctoral) students at a state university in Macau who were recruited following a purposive sampling procedures. But data from six participants were excluded because they did not complete all the questionnaires; so the final sample consisted of 164 students who are all holders of Mainland Chinese IDs from variable provinces such as Guangdong, Guangxi, Hubei, Hunan, Beijing, Shanghai, Xinjiang, Fujian, Jiangsu, and Shanxi provinces, Fujian, Henan, and Tianjin. Most of the participants were female (102 or 62.2 %), and most were seeking masters degrees (146 or 89.0 %). Their ages ranged from 21 to 38 years, with mean age of 24.6 years..

Questionnaire

Data were gathered using a questionnaire with instructions and scales in Mandarin. All the measures in the study were translated to Mandarin using simplified Chinese orthography from the original English version of the scales below. All the scale and subscales were found to have satisfactory internal consistency (see Table 29.1 for Cronbach α scores).

Demographic Information The questionnaire inquired about the participants' sex, education level, major, residential status in Macau, monthly individual income in Macau, marriage status, religion (if any), and length of stay in Macau. No personal identifying information was obtained from the participants. As part of the background information on the participants, we also asked them to indicate their self-rated proficiency in Cantonese and in English, but these data were not included in the present analysis.

Mental Health The measure of the students' mental health was the General Health Questionnaire-12 (GHQ-12; Banks et al., 1980), which is a 12-item short form of the original 60-item General Health Questionnaire. Sample items include, "Have you recently lost much sleep over worry?" and participants were asked to respond on a scale from 0 (*never*) to 3 (*much more than usual*); lower scores in the GHQ-12 suggest better mental health.

Table 29.1 Descriptive statistics and group comparisons for variables

Variables	Complete sample		Comparison by sex			Comparison by education level		
	Cronbach α	M (SD)	Male M (SD)	Female M (SD)	F(1,162)	Masters M (SD)	Doctoral M (SD)	F(1,162)
Graduate stress	.89	3.22 (0.82)	3.21 (0.81)	3.23 (0.83)	<1.0	3.21 (0.83)	3.35 (0.68)	<1.0
Academic stress	.83	4.01 (1.02)	3.78 (1.05)	4.14 (0.98)	4.99*	4.00 (1.04)	4.03 (0.86)	<1.0
Environmental stress	.82	2.80 (0.90)	2.89 (0.89)	2.75 (0.90)	<1.0	2.81 (0.90)	2.82 (0.89)	<1.0
Family/monetary stress	.76	2.64 (1.04)	2.78 (0.91)	2.55 (1.10)	2.03	2.57 (0.99)	3.12 (1.31)	4.54*
Acculturative stress	.91	1.27 (0.58)	1.18 (0.54)	1.32 (0.60)	2.07	1.24 (0.59)	1.48 (0.47)	2.83
Language deficiency	.82	1.45 (0.84)	1.37 (0.77)	1.50 (0.87)	<1.0	1.42 (0.85)	1.64 (0.71)	1.10
Academic work	.71	1.45 (0.63)	1.31 (0.57)	1.54 (0.66)	5.21*	1.44 (0.65)	1.60 (0.42)	1.07
Cultural difference	.83	0.91 (0.66)	0.89 (0.60)	0.93 (0.70)	<1.0	0.87 (0.66)	1.22 (0.63)	4.53*
Social interaction	.75	1.25 (0.65)	1.18 (0.62)	1.29 (0.66)	1.26	1.22 (0.65)	1.47 (0.63)	2.37
Sense of belonging	.87	2.92 (0.77)	2.97 (0.79)	2.89 (0.75)	<1.0	2.90 (0.77)	3.04 (0.72)	<1.0
Resilience	.92	4.76 (0.90)	4.73 (0.85)	4.78 (0.93)	<1.0	4.78 (0.91)	4.67 (0.73)	<1.0
Personal meaning	.93	4.40 (0.83)	4.53 (0.85)	4.32 (0.81)	2.52	4.41 (0.85)	4.33 (0.70)	<1.0
Achievement	.82	4.53 (1.06)	4.78 (0.98)	4.37 (1.08)	5.93*	4.53 (1.08)	4.56 (0.91)	<1.0
Relationship	.79	5.07 (1.07)	4.98 (0.93)	5.13 (1.15)	<1.0	5.10 (1.05)	4.81 (1.15)	1.17
Religion	.84	3.36 (1.50)	3.72 (1.58)	3.14 (1.41)	5.95*	3.38 (1.51)	3.17 (1.38)	.34
Self-transcendence	.79	4.35 (1.14)	4.61 (1.12)	4.19 (1.14)	5.53*	4.35 (1.16)	4.31 (1.02)	<1.0
Self-acceptance	.66	4.73 (0.97)	4.74 (0.95)	4.72 (0.99)	<1.0	4.75 (1.00)	4.53 (0.70)	<1.0
Intimacy	.72	4.22 (1.45)	4.28 (1.33)	4.19 (1.52)	<1.0	4.17 (1.44)	4.69 (1.48)	2.06
Fair treatment	.83	4.57 (1.01)	4.62 (0.97)	4.54 (1.04)	<1.0	4.62 (0.99)	4.20 (1.10)	2.72
General mental health	.81	1.03 (0.43)	1.10 (0.42)	0.99 (0.43)	2.59	1.00 (0.42)	1.26 (0.42)	6.23*

*p < .05

Cantonese and English Proficiency Each participant was asked to rate respectively their self-rated proficiency in Cantonese and in English using a scale from 1 (*very poor*) to 5 (*proficient*).

Postgraduate Stress The 21-item Graduate Stress Inventory-Revised (GSI-R; Rocha-Singh, 1994) was administered to assess postgraduates' level of perceived stressors including academic stress (8 items, e.g., "Taking exams"), environment stress (8 items; "Living in the local community"), and family/monetary stress (5 items, "Paying monthly expenses"). Participants were asked to rate how stressful each item was from 1 (*not at all stressful*) to 7 (*extremely stressful*).

Acculturation Stress The 17-item Acculturation Hassles Scale for Chinese Students (Pan, Yue, & Chen, 2010) was administered to measure one's acculturative stress and includes a set of factors containing language deficiency (3 items; e.g. "I cannot express myself very well when using English"), academic work (5 items; "I find it hard to meet the expectation of my supervisor"), cultural difference (4 items; "It is hard for me to integrate to Macau culture"), and social interaction (5 items; "I do not have new social network in Macau"). Participants were asked respond on a scale from 0 (*not at all stressful or not applicable*) to 3 (*extremely stressful*).

Sense of Belonging The 7-item Belonging Scale (Gambone & Arbreton, 1997) was modified to measure the degree of one's sense of belonging to the postgraduate program at Macau. For each of the items (e.g., "People really listen to me at my graduate program"), participants will be asked to respond using the scale from 1 (*never*) to 5 (*all the time*).

Resilience The 14-Item Resilience Scale (Wagnild & Young, 1993) was used to assess psychological resilience. Participants were asked to respond using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) for each of the items (e.g., "I feel that I can handle many things at a time").

Meaning of Life Finally, the brief version of the Personal Meaning Profile (PMP-B; Wong, 1998) was used to measure the sources of meaning in life. The brief scale comprises 21 items, divided into seven subscales/factors with three items each. The subscales are achievement (e.g., "I like challenge"), relationship ("I am trusted by others"), religion ("I seek to glorify God"), self-transcendence ("I make a significant contribution to society"), self-acceptance ("I accept what cannot be changed"), intimacy ("I have a mutually satisfying loving relationship"), and fair treatment ("Life has treated me fairly"). Participants were asked to indicate to what extent each item characterizes their own life, using a scale from 1 (*not at all*) to 7 (*a great deal*).

Procedure

Target participants who were willing to answer the survey where approached in dormitories, postgraduate student offices, laboratories, and the library. The questionnaire was given only to students who gave their informed consent. Most participants took 20–25 min to finish the questionnaire.

Results

The descriptive statistics for all the scales and subscales are summarized in Table 29.1, which also shows the statistics comparing male and female students, and that comparing masters and doctoral students. There are very few cases of significant group differences. Regarding sex, female students reported experiencing higher levels of academic stress and acculturative stress related to academic work compared to male students; but male students also reported deriving higher levels of personal meaning related to achievement, religion, and transcendence. Regarding level of postgraduate education, doctoral students reported higher levels of stress due to family/financial concerns, and acculturative stress related to cultural differences compared to masters students. Most interestingly, masters students reported better mental health than doctoral students.

Which stress-related experiences are related to the postgraduate students' mental health? And which psychological resources are likely to contribute to better mental health? We conducted a multiple regression analysis, where GHQ-12 scores were regressed into all the major scales (but not the subscales) of the various stress-related factors and psychological resources. Prior to the regression analysis, we inspected the correlations among these variables and found no indication of multicollinearity. Most significant correlations were low to moderate, with the only relatively high correlations between resilience and personal meaning ($r=.73$). The correlations showed that GHQ-12 was significantly negatively correlated with proficiency in English ($r=-.16$), belonging ($r=-.23$), resilience ($r=-.52$), and personal meaning ($r=-.47$). Because lower GHQ-12 scores indicate better mental health, these four factors are related to better mental health. And as expected, both academic stress ($r=.38$) and acculturative stress ($r=.43$) were significantly related to poorer mental health.

When these relationships were examined together, the regression analysis revealed only two significant predictors of GHQ-12. Among the sources of stress, only acculturative stress [$\beta=.21$, *stderr of Beta*$=.06$, $p=.009$] was associated with poorer mental health; academic stress was not [$\beta=.12$, *stderr of Beta*$=.04$, *n.s.*]. On the other hand, psychological resilience was a significant negative predictor of GHQ-12 [$\beta=-.31$, *stderr of Beta*$=.05$, $p=.001$], whereas both sense of belonging [$\beta=.04$, *stderr of Beta*$=.04$, *n.s.*] and personal meaning [$\beta=-.15$, *stderr of Beta*$=.05$, *n.s.*] were not. The regression model accounted for a significant proportion of the variance in GHQ-12 [$R^2=.36$, $F(5, 158)=17.50$, $p=.0001$. We believe that the results indicate how cultural experiences make up an important element of students' academic life and well-being, but personal psychological resources are also important factors in this regard. We discuss some implications of our findings in the next section.

Discussion

The current study aimed to explore how stress and positive psychological resources relate to self-reported mental health of migrant Chinese postgraduates in Macau. Generally speaking, the participants reported relatively good mental health and did not suffer from severe distress, based on their mean scores in the GHQ-12. We should note, however, that small number (12 or 7.3 %) of the postgraduate student respondents reported a mean score of 1.67 or higher, which suggests that there may be experiencing severe psychological distress (Goldberg et al., 1997). The figure of 7.3 % is actually relatively high that corresponding counseling service are probably much needed (c.f., Stecker, 2004). Unlike in previous studies indicated that male migrant postgraduates showed better mental health than female counterpart (Yang, 2010), there was no significant sex difference in our sample. We did find that doctoral students reported a relatively poorer mental health than master students. We should be careful about extrapolating from these trends as our sample is not very large, and possibly not representative. But the trends are worth looking into, particularly as are more important results relate to the factors that are associated with poorer or better mental health.

For example, we hypothesized that the two sources of stress would predict poorer mental health. However, the regression analysis indicated that for this sample of migrant postgraduate students from China, acculturative stress was the only significant predictor of mental health, but graduate stress was not. Presumably, the two forms of stress would share some variance (note: graduate stress and acculturative stress were significantly correlated; $r=.53$, $p=.0001$). But when their influences on mental health are examined together, it seems that the students' problems associated with adjusting to the Macau culture are more significant in determining their mental health. It may be that because of selective admission policies, the postgraduate students from China are capable of dealing with the stresses due to the academic work, and as such, these sources of stress do not influence their mental health as much. But what is interesting is that the acculturative stress experienced by Mainland Chinese students in what is actually another Chinese city seems to be an important determinant of the students' mental health, a finding that is consistent with previous researches (Barrett et al., 2003; Shen & Takeuchi, 2001) but is only now documented with Mainland Chinese students in Macau.

Note that the mean scores for acculturative stress are not high (c.f., $M=1.27$ in range of 0–3). But those who do experience more acculturative stress report poorer mental health. It may be the case that those students from Mainland China who may not be as prepared to deal with the requirements of acculturating in Macau because they expect that it would be similar to their home communities. But an examination of the subscales for acculturative stress actually indicates that cultural difference is the least stressful for the Chinese postgraduate students compared to the stress they experience from the language and academic requirements and from their social interactions. These findings highlight the role of interpersonal variables in general mental health, which could have even greater relevance in a collectivistic culture

such as that in Macau (Zaroff, Wong, Ku, & Van Schalkwyk, 2014). Nevertheless, our results indicate that we cannot underestimate the adjustment that Mainland Chinese postgraduate students need to go through in Macau. The framework we used for assessing acculturative stress points to four dimensions that could be the target of psychological or counseling interventions.

These interventions might do well to focus on building the psychological resilience, which was a significant predictor of better mental health among the migrant Chinese postgraduate students. Although sense of belonging and personal meaning were also correlated with better mental health, consistent with previous research (Michaud, 2006; Nesdale et al., 1997), only resiliency was significantly related to mental health when the effects of these three positive psychological resources are examined together. This finding adds to the large body of research findings that show resilience as an important predictor of positive mental health (Grotberg, 2003; Masten & Reed, 2002; Michaud, 2006), and in some cases contributing to migrant students having even better mental health than local students (Wan et al., 1992).

We acknowledge that we examined a very limited range of positive resources and protective factors that contribute to positive mental health and a more comprehensive approach to addressing the mental health needs of Mainland Chinese postgraduate students in Macau would need to consider a more diverse range of factors. Research suggests that there are culture-specific factors that serve as protective factors in some Chinese communities. For instance, the considerably low rates of violent crime in some Chinese societies may be related to an adherence to traditional Chinese values, values in which family solidarity assumes extreme importance, even in the face of strict parental control and discipline (Tong, Ku, & Zaroff, 2014). These traditional values may serve as protective factors in those at risk for psychopathology. Thus, consideration of such values in samples of individuals of Chinese ethnicity may be helpful, especially when the sample in question is a group of students of Chinese ethnicity, who might be in a context leaving them particularly susceptible to stress, as noted in the current chapter. So there could be more research undertaken about specific factors that contribute to better mental health in the specific population of Mainland Chinese postgraduate students.

In this regard, we also acknowledge that we used a very popular and often used self-report measure of mental health that can be criticized as being too simple to actually provide a good index of the postgraduate students' real mental health profiles. There are also cultural nuances in how symptoms of distress and other mental health problems are manifested in specific cultures. In particular, somatic presentations of distress may predominate in Asian cultures (Zaroff, Davis, Chio, & Madhavan, 2012), due in no small measure to stigma. Thus, we may not have been able to capture all aspects of the postgraduate students' mental health in this study on the basis of a brief, albeit widely used and validated, self-report measure.

The limitations in our study notwithstanding, we believe that our results point to attend to the factors that shape the mental health experiences of Chinese postgraduate students in Macau who experience problems adjusting to their new academic and social environments. Our results point to some viable entry points for psycho-

logical interventions that could help maintain positive mental health in these students, but a discussion of psychological interventions fall beyond the scope of this chapter.

Instead, we wish to conclude by emphasizing the need to have a more nuanced understanding of the psychological experiences of this special type of learner that we find in more and more universities across Asia. Consistent with the work of Prof David Watkins, whom we honor with this chapter, our results underscore that need to pay attention to the cultural dimensions of learners' total range of experiences (King & Watkins, 2013). The finding of the study regarding how acculturative stress experiences by Chinese postgraduate students in another Chinese city also tells us that culture is construct that should not be equated with related constructs such as race, ethnicity, or nationality (Hwang & Matsumoto, 2013) and that differences in cultural knowledge and experiences can arise at many different levels of the learners social and learning experiences (Bernardo & Liem, 2013). In this regard, we believe that the mental health and well-being of the migrant Asian learners will be an important and potentially complicated area of inquiry within what is already a rich area of the study of culture and the psychology of learning. Fortunately, Prof David Watkins has already blazed a trail for all psychologists interested in these dynamic interphases between culture, psychology, and learning.

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Chapter 30
Positive Emotions Predict Students' Well-Being and Academic Motivation: The Broaden-and-Build Approach

Michelle Low, Ronnel B. King, and Imelda S. Caleon

Abstract Fredrickson's (1998) broaden-and-build theory argues that positive emotions can facilitate the building up of important psychological resources. However, this theory has seldom been tested in an educational context. This paper aims to examine how positive and negative emotions predict students' well-being (i.e., levels of life satisfaction, happiness, and depressive symptoms) and academic motivation (i.e., controlled and autonomous motivation) which are considered as key psychological resources in the school context. A sample of secondary students from Singapore ($N = 134$) answered surveys assessing their emotions, motivation, and well-being. Hierarchical regression analyses results revealed that positive and negative emotions were differentially associated with well-being. Results also showed that positive emotions positively predicted both controlled motivation (i.e., identified regulation and intrinsic motivation) and autonomous motivation (i.e., external regulation and introjected regulation). This was particularly interesting from a cross-cultural perspective because external regulation and introjected regulation have been found to be maladaptive among Western students. However, these types of motivation may not necessarily be harmful in collectivist contexts. Theoretical and practical implications are discussed.

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Introduction

Students' well-being and academic motivation are two important psychological constructs that have captured the interest of many educators and researchers. Well-being connotes "global judgments of life satisfaction and the experience of frequent positive and infrequent negative moods" (Howell, Kern, & Lyubomirsky, 2007). Academic motivation is defined as the "degree to which students invest attention and effort" to academic pursuits (Brophy, 2004, p. 3). Well-being and academic motivation have been linked with a number of academic and non-academic outcomes. For example, studies have linked well-being with academic achievement and graduation (Gilman & Huebner, 2006; Ou, 2008; Suldo & Shaffer, 2008). Well-being has also been found to be linked to global health (Mroczek & Spiro, 2005; Roysamb, Tambs, Reichborn-Kjennnerud, Neale, & Harris, 2003) and mental health (Phillips, 1967). Similarly, academic motivation has been found to be associated with the likeliness to stay in school, greater conceptual learning, and better memory (Deci, Vallerand, Pelletier, & Ryan, 1991; Grolnick, Ryan, & Deci, 1991; Grolnick & Ryan, 1987).

Despite the number of studies on motivation and well-being, few studies have investigated these constructs together in one study. Moreover, not much is known about how positive emotions are associated with both motivation and well-being. Previous research has mostly focused on the role of negative emotions, but not much attention has been paid to its positive side. Therefore, this study uses the broaden-and-build theory as a theoretical framework to understand how positive emotions (alongside negative emotions) can influence students' well-being and academic motivation.

Theoretical Background

The Broaden-and-Build Theory

The broaden-and-build theory specifies different functional roles for positive and negative emotions (Fredrickson, 2013). Negative emotions such as sadness or anxiety are thought to narrow individuals' cognitions and thought-action repertoires by leading individuals to behave in a particular way (e.g., escape when feeling afraid). On the other hand, positive emotions broaden a person's thought-action repertoires (the broaden hypothesis), which set the stage for engagement in a wider range of cognitions and behaviors. These broadened mindsets, in turn, build up a person's physical, intellectual, and social resources (the build hypothesis).

Evidence for the broadening function of positive emotions has been increasing. For example, research has shown that positive emotions broadened the scope of people's visual attention (Fredrickson & Branigan, 2005; Wadlinger & Isaacowitz, 2006). Broadening emotions have also been found to elicit thought patterns that were more unusual (Isen, Johnson, Mertz, & Robinson, 1985), flexible (Isen & Daubman, 1984), and creative (Davis, 2009; Isen, Daubman, & Nowicki, 1987). The psychological mechanisms triggered by positive emotions to elicit such thought patterns may also share similar conceptual space as academic motivation.

Studies have also supported the thesis that positive emotions lead to the building up of enduring personal resources. A meta-analytic study that aggregated data across more than 275,000 participants has shown that positive emotions were associated with higher-quality social relationships, higher performance at work, and more positive health outcomes (Lyubomirsky, King, & Diener, 2005). Studies have also shown that people who experience more positive emotions are more resilient (Fredrickson, Tugade, Waugh, & Larkin, 2003), resourceful (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008), socially connected (Kok & Fredrickson, 2010; Mauss et al., 2011), and healthier (Doyle, Gentile, & Cohen, 2006) and have higher levels of optimal functioning (Mauss et al., 2011).

Despite the ample evidence that has accumulated for the broaden-and-build theory, there are few studies that applied it to the educational and Asian context. Bordwine and Huebner (2010) have used this theory as a framework to examine whether approach coping behaviors mediated the relationship between positive emotions and school satisfaction. Although Bordwine and Huebner did use this theory as a framework, they only looked at one outcome, school satisfaction.

Similarly, Stiglbauer, Gnambs, Gamsjager, and Batinic (2013) used the broaden-and-build theory to examine whether positive school experiences will predict happiness and, in turn, whether happiness will predict positive school experiences. However, rather than focusing on positive emotions in general, Stiglbauer et al. (2013) focused specifically on positive school experiences but not on positive emotions per se. Hence, there is still a lack of examination of how positive emotions predict important school outcomes. Furthermore, there is no study to our knowledge that has applied the broaden-and-build framework on Asian student populations. This is an important gap that needs to be addressed given that the broaden-and-build theory may have interesting implications for well-being and motivation research.

Positive Emotions and Well-being

In this paper, three different indices of well-being are included: life satisfaction, happiness, and depressive symptoms. Positive emotions have been found to be associated with each of these constructs.

Life satisfaction as defined by Diener, Emmons, Larsen, and Griffin (1985) is the general appraisal of an individual's overall life or major facets of his or her life. Life satisfaction is a crucial educational outcome that should be examined because it has been found to be related to a variety of outcomes. Life satisfaction has been found to be related to academic achievement (Gilman & Huebner, 2006; Suldo & Shaffer, 2008), that is, students with higher life satisfaction had higher GPAs and higher scores on standardized tests. Life satisfaction also predicted which college students would drop out of school (Frisch et al., 2005) and which students will complete their degrees (Ou, 2008). It has also been found to be positively related to attitudes toward teachers and school in general (Gilman & Huebner, 2006; Gilman, Huebner, & Laughlin, 2000).

Based on the existing literature on positive emotions, positive emotions have been thought to play a role in an individual's life satisfaction. Fredrickson (2009) postulated that experiences of positive emotions can help individuals build resources and skills that can be used to bounce back from adversity. An individual might face difficulties, but he or she can use the accumulated resources to tackle or cope with the challenge, and this can lead to a rise in life satisfaction. This line of reasoning has been validated; participants who frequently experienced positive emotions were found to be more satisfied with life (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009). It has also been experimentally validated. For instance, Fredrickson et al. (2008) have shown that positive emotions can produce changes in life satisfaction through the building of personal resources. They showed that positive emotions induced by mindfulness meditation led to the development of skills which can be used to cope with other stressful occasions. Being able to cope with stressful occasions and challenges more readily leads to an increase in life satisfaction.

Another key component of well-being is happiness, which is defined as "the experiencing and savoring of pleasures, losing the self in engaging activities, and participating in meaningful activities" (Seligman, Parks, & Steen, 2005). Happiness is yet another outcome that is worthy of examination because it has been found to engender success across multiple domains (Lyubomirsky et al., 2005). Researchers have found happiness to be positively associated with overall job performance (De Luga & Mason, 2000; Janssen, Lam, & Huang, 2010; Wright & Cropanzano, 2000), sense of meaning in the workplace (Staw, Sutton, & Pelled, 1994), and positive supervisory evaluations (Wright & Staw, 1994). In terms of health, happiness was also found to be positively associated with global health (Mroczek & Spiro, 2005; Roysamb et al., 2003), mental health (Phillips, 1967), and physical activity (Emmons & McCullough, 2003). Although most of these findings are based on adult samples, it is very likely that happiness can have the same positive influence on the lives of students.

Positive emotions are thought to be directly involved in this definition of happiness because it is thought to engender and facilitate approach behavior which propels individuals to become engaged with their surroundings and to take part in activities (Cacioppo, Gardner, & Berntson, 1999). For example, joy prompts individuals to play and to be creative (Fredrickson, 2004). Interest prompts individuals to explore and to accumulate new information and experiences. Contentment leads individuals to savor the existing life circumstances and to incorporate these circumstances into their worldviews. In general, these emotions prompt and broaden various thought-action tendencies such as to explore, to savor, and to engage. This essentially fulfills the definition of happiness as provided by Seligman et al. (2005). Several studies provide support for this contention. For example, researchers have shown that when students are provided with opportunities to make decisions and to learn material that is deemed interesting and relevant to them, students rated higher positive adjustment (Miserandino, 1996). Hence, in educational contexts, students who experience positive emotions are likely to have enhanced happiness levels, which could lead to better academic and health outcomes.

Depressive symptomatology is another outcome that requires closer examination because the prevalence of depression among youths has been rising. Researchers have reported that depression is now ten times more prevalent than it was 50 years

ago (Wickramaratne, Weissman, Leaf, & Holford, 1989), and close to 20 % of youths worldwide have experienced at least one episode of clinical depression before graduating from high school (Lewinsohn, Rohde, Seeley, & Fischer, 1993). One of the main components of depressive symptoms is rumination which is defined as "thoughts and behaviors that focus the depressed individual's attention on his or her symptoms and the possible causes and consequences of the symptoms" (Nolen-Hoeksema, Morrow, & Fredrickson, 1993). Rumination narrows a person's mindset. It is possible that positive emotions can counteract this narrowing effect of rumination.

Positive emotions have been found to be a predictor of well-being, particularly life satisfaction across cultures (Suh, Diener, Oishi, & Triandis, 1998). However, it has also been found that different cultures have different functional values attached to positive emotions. For instance, individuals from highly individualistic cultures (e.g., the USA) evaluate their overall life satisfaction based on their emotional experiences more strongly than those who come from collectivistic cultures (e.g., China). Singapore is considered as a collectivistic society (Lim, 2009), but it was not included in previous studies that attempted to study cross-cultural differences in positive emotions and life satisfaction (e.g., Oishi, Diener, Lucas, & Suh, 1999; Suh et al., 1998). Noting the fact that Singapore has not been examined in the existing literature, the current study intends to examine how much of an influence positive emotions have on the well-being of Singaporean students.

Positive Emotions and Academic Motivation

Motivation refers to an internal state or condition that energizes goal-oriented behavior (Brophy, 2004; Ryan & Deci, 2000). In the educational context, the focus of much research is on academic motivation which could be defined as the "degree to which students invest attention and effort" to academic pursuits (Brophy, 2004, p. 3). In promoting academic motivation, positive emotions can play a significant role.

Academic motivation can be categorized into extrinsic motivation and intrinsic motivation (Vallerand et al., 1992). Intrinsic motivation refers to being energized to engage in an activity because of a genuine interest and not because of any external reward or pressure (Deci & Ryan, 1985). Extrinsic motivation, on the other hand, refers to being induced to engage in a task not for inherent reasons but for instrumental purposes (e.g., studying hard in order to avoid being punished). As proposed by Deci and Ryan (1985, 2000), there are three types of extrinsic motivation that can be ordered from low to high degree of autonomy experienced: external regulation, introjected regulation, and identified regulation (Vallerand et al., 1992). External regulation refers to engaging in a behavior for some external rewards or demands. For instance, a student studies hard to be able to go for an overseas holiday or to demand higher salary. Introjected regulation refers to performing an activity due to internal pressure, such as to avoid guilt, pride, or shame: This is exemplified when a student is motivated to study because he or she believes that it is what a good student is supposed to do. Identified regulation is a form of motivation that drives a

person to do an activity because he or she recognizes the importance of performing the activity for personal development or achievement of chosen goals. A student who is driven to act with this form of motivation would study because studying leads him or her to become a successful person. Some researchers classify external regulation and introjected motivation as controlled forms of motivation and consider identified regulation and intrinsic motivation as autonomous forms of motivation (Deci & Ryan, 2008). Hundreds of studies have documented the positive effects of more autonomous forms of motivation and the deleterious effects of more controlled forms of motivation on a wide range of outcomes (Deci & Ryan, 2000).

A few research articles have elaborated and demonstrated that students' motivation to learn can be influenced by their emotional experiences. Fredrickson (2004) postulated that positive emotions, such as joy and excitement, predispose individuals to play and to explore without the need for any external influence. This is closely related to Deci and Ryan's (1985) conceptualization of intrinsic motivation suggesting that positive emotions can drive individuals to be intrinsically motivated to act. Moreover, Pekrun (2006) posited that positive emotions can strengthen intrinsic motivation, while negative emotions may induce more extrinsic types of motivation. Mega, Ronconi, and de Beni (2014) reported that positive emotions enhanced students' perception of their capability to pursue goals that are intended to increase their competence by acquiring task-relevant knowledge and skills. Mega and colleagues also found that positive emotions had stronger influence compared to negative emotions on students' motivation to engage in learning activities.

Culture, Emotions, and Motivation

The role that culture plays concerning the connections between positive emotional experiences and motivation has not been given much attention in the existing literature. Nevertheless, reports from several cross-cultural studies lend some support for the possible interplay among these constructs. Research has shown that motivation is strongly influenced by the sociocultural context (King & McInerney, 2014; Zusho & Clayton, 2011). For Asian learners, both extrinsic motivation and intrinsic motivation are important for high academic functioning (Leung, 2001; Zhu & Leung, 2011). Strong links between extrinsic motivation and academic motivation of Asian students have been reported (see Caleon et al., in this volume). It is perhaps for this reason that educators in Asian contexts promote both extrinsic and intrinsic motivation, while their counterparts from Western contexts emphasize the promotion of intrinsic motivation and de-emphasize extrinsic motivation (see Leung, 2001). In support of this view, Zhu and Leung (2011) found that both extrinsically oriented (productivity-oriented) and intrinsically oriented (pleasure-oriented) motivation tend to influence the achievement of students from several East Asian education systems, whereas extrinsic-related motivation seems to have negative effects on the achievement of their peers in Western contexts. Noting the strong links between extrinsic motivation and intrinsic motivation that were reported in relation to Asian

learners, emotions that are regarded to have some significant influence on intrinsic motivation (Mega et al., 2014; Pekrun, 2006) are also likely to be associated with extrinsic motivation. It is highly likely that positive emotions also facilitate more controlled forms of motivation. The present study aimed to test these conjectures.

Rationale for Current Study

The aim of this study was to examine how positive emotions are related to student well-being and academic motivation. In terms of well-being, we looked at various indices such as life satisfaction (Diener et al., 1985), overall happiness (Seligman et al., 2005), and depressive symptoms (Radloff, 1977). Based on Fredrickson's research, we made the following hypotheses:

H_1: Positive emotions will positively predict positive indices of well-being (life satisfaction and happiness).

H2: Positive emotions will negatively predict negative indices of well-being (i.e., depressive symptoms).

H_3: Positive emotions will positively predict controlled types of motivation (i.e., external regulation and introjected regulation).

H4: Positive emotions will positively predict autonomous types of motivation (i.e., identified regulation and intrinsic motivation).

Methods

Participants and Procedures

A total of 134 students from a secondary school in Singapore participated in the study. There were 69 (51 %) male and 65 female students, and the average age of these students was 13.9 (SD = 1.21). Out of 134 students, 72 (53.3 %) of them were in secondary 1, and the rest were in secondary 3. The students were given the packet of questionnaires during a designated time slot by the school. The data was collected as part of a larger positive psychology intervention in which data were collected at pretest and posttest. However, for the purpose of this study, we examined only the data collected during the pretest.

Instruments

Students were given a packet of questionnaires that contained several instruments which assessed their emotions (positive and negative), well-being (i.e., life satisfaction, happiness, and depression), and academic motivation (intrinsic and extrinsic). The students took about 45 min to respond to the questionnaire.

Emotions The short version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to assess positive (e.g., excited and enthusiastic) and negative emotions (e.g., nervous and afraid). It is a 10-item scale in which students were asked to respond using a 7-point Likert scale ranging from "very untrue of me" to "very true of me" to indicate how they felt in the past week (e.g., inspired, afraid, alert, upset, enthusiastic, and nervous).

Well-Being Life satisfaction was assessed by the use of the Satisfaction with Life Scale (SWLS; Diener et al., 1985). The scale has a total of five items, and students were asked to rate each item on a 7-point Likert scale to indicate how they felt about their life in general. The scale ranged from "very untrue of me" to "very true of me." Examples of items on this scale includes "In most ways, my life is close to my ideal" and "the conditions of my life are excellent."

Happiness was assessed with the use of the Steen Happiness Index (SHI; Seligman, Steen, Park, & Peterson, 2005). The scale contained 20 items, and participants were required to read five states and pick one from each group that best describes them at the present time.

Depressive symptoms were evaluated with the use of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). It consists of 20 items in which students rated each item on a 4-point Likert scale ranging from zero point for "rarely or none of the time," one point for "some or a little of the time," two points for "occasionally or a moderate amount of the time," and three points for "most or all of the time." Positive affect items were reverse coded, and all the items were then added to form a cumulative score. The scores ranged from 0 to 60. According to Radloff, scores between 15 and 21 suggest elevated depressed mood, and scores about 21 suggest the possibility of major depression.

Academic Motivation The Academic Motivation Scale (Vallerand et al., 1992) was used to assess intrinsic motivation and extrinsic motivation, which comprises three subscales: external regulation, introjected regulation, and identified regulation. The scale comprised 22 items. 12 items measured extrinsic motivation, with four items measuring each of the subscales. Six items measured intrinsic motivation, and the rest of the items measured a motivation which is excluded for the purpose of this paper. The items were rated on a 7-point Likert scale ranging from "very untrue of me" to "very true of me."

Results

Baseline Descriptives

Table 30.1 shows the descriptive statistics, internal consistency (i.e., Cronbach's α) of each construct, and intercorrelations between constructs. Positive emotions was found to be positively correlated with life satisfaction, happiness, external regulation,

Table 30.1 Descriptive data and intercorrelations between scales, $N=134$

	Means (SD)	α	1	2	3	4	5	6	7	8	9
Positive emotions	4.32 (1.20)	.83		.16	.41**	.40*	-.16	.30**	.44**	.38	.49**
Negative emotions	4.00 (1.52)	.83			-.19*	-.39**	.54**	.003	-.08	.04	-.03
Life sat	4.20 (1.19)	.81				.57**	-.43**	.33**	.41**	.38**	.42**
Happy	54.78 (14.60)	.94					-.60**	.32**	.44**	.36**	.50**
Depress	23.31 (12.75)	.90						-.18*	-.24**	-.18*	-.29**
External	5.64 (0.99)	.65							.71**	.74**	.59**
Introjected	5.05 (1.19)	.86								.73**	.77**
Identified	5.54 (1.02)	.79									.70**
Intrinsic	4.94 (1.00)	.84									

* $p < .01$
** $p < .001$

Note: External refers to external regulation, introjected refers to introjected regulation, identified refers to identified regulation, and intrinsic refers to intrinsic motivation

introjected, identified, and intrinsic motivation. As for negative emotions, it was negatively correlated to life satisfaction and happiness, and positively correlated to depressive symptoms.

Positive Emotions as Predictors of Well-Being

To test our first hypothesis, positive emotions will positively predict positive indices of well-being (i.e., life satisfaction and happiness); a hierarchical multiple regression analysis was performed. Tests for multicollinearity indicated the existence of very low levels of multicollinearity ($VIF = 1.03$ for both positive emotions, $VIF = 1.04$ for negative emotions). Demographic variables (i.e., gender and school level) were entered in the first block followed by positive and negative emotions in the second block. The results are that positive emotions are predictors of well-being. In looking at life satisfaction, the first block of predictors did not predict a significant amount of variance in the outcome. The second block, however, showed that positive and negative emotions predicted life satisfaction $F(4, 130) = 9.94$, $p < .001$. The predictors accounted for 23.4 % of the variance. More specifically, positive emotions were found to positively predict life satisfaction ($\beta = .43$, $p < .001$), whereas negative emotions were found to negatively predict life satisfaction ($\beta = -.21$, $p < .05$).

In terms of happiness, the first block of predictors did not predict a significant amount of variance. The second block showed that positive and negative emotions predicted happiness $F(4, 130) = 19.10$, $p < .001$. The predictors accounted for 37 % of the variance. Positive emotions were found to positively predict happiness ($\beta = .45$, $p < .001$), while negative emotions negatively predicted happiness ($\beta = -.43$, $p < .001$).

The second hypothesis, positive emotions will negatively predict negative indices of well-being (i.e., depressive symptoms), was also tested. The first block of predictors predicted depressive symptoms $F(2,132) = 4.40$, $p < .05$, and it accounted for 6.2 % of the variance. The second block of predictors also showed significant results: positive and negative emotions predicted depression $F(4,130) = 20.81$, $p < .001$. Taken together, the predictors accounted for 39 % of the variance. Positive emotions were found to negatively predict depressive symptoms ($\beta = -.24$, $p < .05$), whereas negative emotions were found to positively predict depressive symptoms ($\beta = .30$, $p < .001$) (Table 30.2).

Positive Emotions as Predictors of Academic Motivation

Our third hypothesis states positive emotions will positively predict controlled types of motivation (i.e., external regulation and introjected regulation). Our results revealed that for external regulation, the first block of predictors did not produce any significant results. The second block, on the other hand, revealed positive and negative emotions to predict external regulation $F(4,130) = 3.31$, $p < .05$. The predictors

Table 30.2 Predicting well-being and motivation, $N=134$

Predictors	Well-being			Motivation			
				Controlled		Autonomous	
	Life Sat	Happy	Depress	External	Introjected	Identified	Intrinsic
Step 1							
Gender	−.25*	−.28*	.19	−.01	−.04	−.01	−.08
Level	−.09	−.06	.23	.09	.02	−.10	−.02
R^2 change	.07*	.08*	.09*	.01	.002	.01	.01
Step 2							
Positive emotions	.43**	.45**	−.24*	.31**	.47**	.38**	.50**
Negative emotions	−.21*	−.43**	.55**	−.06	−.16	−.01	−.10
R^2 change	.19**	.31**	.30**	.09*	.22**	.14**	.25**
Total R^2 change	.26**	.39**	.39**	.10*	.22**	.15**	.26**

* $p<.01$
** $p<.001$
Note: Higher scores on the scaled variables reflect stronger endorsements of that variable. Values shown are standardized multiple regression coefficients. External refers to external regulation, introjected refers to introjected regulation, identified refers to identified regulation, and intrinsic refers to intrinsic motivation

accounted for 10 % of the variance. Positive emotions were found to positively predict external regulation ($\beta=.31$, $p<.001$), whereas negative emotions were not significant predictors.

As for introjected regulation, the first block of predictors was not significant. The second block of predictors revealed positive and negative emotions to predict introjected regulation $F(4,130)=9.39$, $p<.001$. The predictors accounted for 22.4 % of the variance. Positive emotions positively predicted introjected regulation ($\beta=.47$, $p<.001$), while negative emotions was not found to be a significant predictor.

Finally, we tested our fourth hypothesis: positive emotions will positively predict autonomous types of motivation (i.e., identified regulation and intrinsic motivation). In looking at identified regulation, the first block of predictors did not produce any significant result. The second block of predictors revealed positive and negative emotions to predict introjected regulation $F(4,130)=5.90$, $p<.001$. Taken together, the predictors accounted for 15.4 % of the variance. Positive emotions positively predicted identified regulation ($\beta=.38$, $p<.001$), whereas negative emotions were not statistically significant.

As for intrinsic motivation, the first block of predictors did not produce any significant results. The second block revealed positive and negative emotions to be a significant predictor of intrinsic motivation $F(4,130)=11.10$, $p<.001$. The predictors accounted for 26 % of the variance. Positive emotions positively predicted intrinsic motivation ($\beta=.50$, $p<.001$), whereas negative emotions did not produce any significant prediction.

Discussion

The aim of this study was to investigate how positive and negative emotions were associated with both well-being and academic motivation.

Our first and second hypotheses were confirmed – positive emotions positively predicted well-being. Positive emotions were positively associated with life satisfaction and happiness and negatively associated with depression. Negative emotions, on the other hand, negatively predicted life satisfaction and happiness and positively predicted depression.

These findings show that the broaden-and-build theory seems useful for understanding how emotions are closely linked to well-being. Given the importance of well-being, a possible route to improving it would be to enhance positive emotional experiences in school. Research has shown that there are different factors that could promote positive emotions in school. These include fostering close emotional relationships among teachers and peers (Furrer & Skinner, 2003), using autonomy-supportive teaching styles which acknowledge the importance of student agency (Reeve, 2009), and reducing the salience of competition in class among others (Pintrich, 2003). These strategies may have beneficial consequences for students' overall well-being aside from improving students' overall learning gains.

These findings align with extant literature. In looking at well-being, our analyses revealed that positive emotions positively predicted life satisfaction of students in Singapore (Cohn et al., 2009; Suh et al., 1998) and happiness (Stiglbauer et al., 2013) and negatively predicted depressive symptoms (Seligman, Rashid, & Parks, 2006).

Our analyses have also found that positive emotions predicted students' academic motivation. The more positive emotions that he or she experiences, the more likely he or she will have higher levels of controlled types of motivation (i.e., identified regulation and intrinsic motivation) and autonomous types of motivation (i.e., external regulation and introjected regulation). These findings can be considered as novel in two ways: Firstly, we were able to provide empirical evidence in support of Fredrickson's broaden-and-build theory by establishing the positive associations between positive emotions and academic motivation in a school context.

Educational psychologists who focus on motivation have usually looked at how contextual variables (e.g., teacher-student relationship, classroom goal structure, peer support) as well as more fundamental psychological needs function as antecedents of motivation. From a broaden-and-build perspective, academic motivation can be thought of as an important psychological resource that is more readily consolidated when students experience a greater amount of positive emotions. The results of this study show that it is also important to consider students' emotional experiences which may function as facilitators/inhibitors of motivation.

Interestingly, our study showed that positive emotions are not only important determinants of students' intrinsic motivation to study, which is generally heralded as a strong determinant of students' academic performance in both Western and Asian settings, but also of the students' extrinsic motivation, which is regarded as an antecedent to maladaptive outcomes in Western settings.

At first, the positive association between positive emotions and extrinsic motivation such as external and introjected regulation seems surprising. One would expect

that positive emotions will be more strongly associated with relatively more autonomous types of motivation such as identified regulation and intrinsic motivation but not with more controlled forms of motivation such as external regulation and introjected regulation. However, the present results can be better understood in light of our current sample's immersion in an Asian cultural tradition that places high currency for education and recognizes high-stakes examination as a prime source of the students' drive to study. In Asian cultures, academic achievement is seen as an indicator of knowledge acquisition and as a way to bring honor to the family (Tao & Hong, 2013). The belief that humans need some "push" or "pressure" to study and learn is also prominent (Leung, 2001). Learning is construed not only as an individual cognitive activity but as something that closely implicates the family and other significant authority figures such as teachers (Li, 2002). In such sociocultural contexts, extrinsic types of motivation may have been internalized.

This conjecture is partly supported by the strong positive correlations between intrinsic motivation and extrinsic motivation reported by the current sample. In Western studies, extrinsic and intrinsic types of motivation have lower or nonsignificant correlations (Fairchild, Horst, Finney, & Barron, 2005; Vallerand et al., 1992). Given that the distinction between intrinsic and extrinsic motivations is not that pronounced for the present sample, the influence of positive emotional experiences on both forms of motivation is not surprising.

Research has also shown that extrinsic types of motivation may not necessarily be maladaptive in Asian cultures. In fact, studies have shown that what is typically regarded as extrinsic motivation according to Western research may lead to adaptive outcomes. For example, Cheng and Lam (2013) found that the goal of pleasing authority figures – construed as an extrinsic type of motivation in the West – only leads to maladaptive outcomes among individuals who have an independent self-construal but not among those who have an interdependent self-construal. Research by King, McInerney, and Watkins (2012, 2013; see also King, Ganotice, & Watkins, 2014; King & McInerney, 2015, this volume) has also shown that studying for the sake of fulfilling social needs for affiliation, approval, and status – all construed as extrinsic types of motivation in the West – is related to adaptive learning outcomes such as self-regulation, engagement, and the use of deep learning strategies. This may explain why positive emotions are also associated with more controlled types of motivation such as external and introjected regulation. More research is needed to examine the adaptiveness of external and introjected regulation in the Singaporean context. Note that we only studied how emotions predicted motivation, but we were unable to investigate how motivation was related to other key outcomes such as learning engagement or academic achievement.

Implications and Limitations

The results of our analyses provide preliminary support for the application of the broaden-and-build theory to the educational context. In consonance with the theory, our findings revealed that positive emotions are associated with higher well-being

and higher academic motivation. Moreover, the findings reported here can potentially be used to further insights into students' academic motivation and well-being and encourage future studies aimed at promoting students' positive emotions to foster both cognitive and psychological development among learners.

Despite the novel connections found in this study, our study has its limitations. The first limitation lies in the fact that our study is based on correlational data. Also, our data are based on self-report measures. Additionally, while our study found support for the predictive ability of positive emotions on well-being and academic motivation, the cross-sectional design of our study prevented us from making concrete conclusions with regard to how positive emotions build resources or skills over time. Finally, our data was drawn from the responses of students from one secondary school in Singapore. Hence, our findings may not be a representative of all students in Singapore and in other Asian countries.

Nevertheless, this study extends evidence that positive emotions are associated with well-being and academic motivation. This finding is important because it shows the usefulness of the broaden-and-build theory in Asian educational context. Educators and researchers can build on our findings by creating conducive environments for students to experience positive emotions more frequently so as to exert beneficial effects on students' well-being and learning outcomes. These findings are preliminary, and more can be done to understand, to cultivate, and to harness positive emotions for the betterment of students.

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Chapter 31
The Successful Life of Gritty Students: Grit Leads to Optimal Educational and Well-Being Outcomes in a Collectivist Context

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Abstract Research has shown that grit facilitates positive psychological outcomes. Yet, almost all of these empirical investigations were carried out in Western societies which raise potential issues with regard to the generalizability of these results in collectivist settings. The present research hopes to address the dearth of studies on grit in non-Western cultures through investigating the psychological effects of grit on educational and well-being outcomes among Filipino high school students. Six hundred six Filipino high school students ($n=606$) participated in the current research. Results showed interesting cross-cultural differences. First, the two dimensions of grit – *consistency of interest* and *perseverance of effort* – were not significantly correlated. Second, path analysis revealed differential prediction associated with the two dimensions of grit. Only *perseverance of effort* positively predicted behavioral engagement, emotional engagement, and flourishing. However, both *consistency of interest* and *perseverance of effort* negatively predicted behavioral and emotional disengagement. The implications of the findings to existing theory and practice are discussed.

Keywords Academic engagement • Flourishing • Grit • Philippines

Introduction

There are countless practical scenarios in our lives where commitment and passion for long-term goals are highly desirable. From a relatively short-term objective like getting a passing mark in the Introduction to Psychology course to a long-term

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aspiration such as completing a doctoral degree in Education, it is very important that one has the determination to accomplish goals that would take a few months or even several years to complete given the possibility of experiencing hardships along the way. Duckworth, Peterson, Matthews, and Kelly (2007) termed this individual difference in persistence to complete long-term goals as grit.

Duckworth et al. (2007) defined grit as "perseverance and passion for long-term goals" (p. 1087). While intelligence plays a crucial role in optimizing academic achievement, they argued that it is equally important to consider noncognitive traits like persistence. Even the early literature has emphasized that perseverance is as vital as intellectual abilities in predicting greater academic performance (Howe, 1999; Terman & Oden, 1947). Though conceptually related, grit differs from the personality trait of conscientiousness since the latter pertains to a stable inclination to endorse self-control and self-regulation but does not include passion within its conceptual space. Grit, on the other hand, entails commitment to goals that are personally meaningful or goals that one is passionate about (Vallerand et al., 2003). Grit is comprised of two dimensions, namely, *perseverance of effort* (inclination to be persistent in accomplishing long-term aspirations) and *consistency of interests* (disposition to stay focused on long-term goals).

Although the extant literature has shown that grit is positively correlated with positive psychological outcomes like academic achievement (Duckworth et al., 2007; Duckworth & Quinn, 2009; Strayhorn, 2014) and academic diligence (Galla et al., 2014) among others, one notable drawback is that all of these were carried out in Western societies (i.e., the United States). Thus, it is not known to what extent these findings would hold in other cultural settings such as collectivist Asian societies.

Grit, Educational, and Well-Being Outcomes

Previous studies revealed that grit was associated with positive school-related and well-being outcomes. In terms of academic outcomes, it was positively correlated with academic achievement (Duckworth et al., 2007; Duckworth & Quinn, 2009), intentional practice in word spellings (Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2010), school motivation (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014), and self-control (Duckworth et al., 2007). In the present research, we focused on the relationship of grit to academic engagement and disengagement. Skinner, Kindermann, and Furrer (2009) refer to academic engagement as the extent to which students are eager to take part and feel good about classroom activities.

The obverse of academic engagement would be disengagement. Disengagement is characterized by passive participation in class as well as feelings of boredom and discouragement. Disengaged students do not feel passionate about schoolwork and do not exert much effort in completing school-related activities. These behavioral and emotional manifestations of academic disengagement are also characterized as disaffection (Connell & Wellborn, 1991). As grit involves determination and perseverance for long-term goals in various situations, it is likely that espousing grit would enhance academic engagement and reduce disengagement.

Aside from academic outcomes, grit has also been linked to pertinent well-being indices. For example, Kleiman, Adams, Kashdan, and Riskind (2013) found that grit was positively associated with meaning in life, while Von Culin, Tsukayama, and Duckworth (2014) found that grit was positively correlated with two approaches to happiness: *meaning* (achieving happiness through helping others) and *engagement* (achieving happiness through doing attention-absorbing activities). Yet, it was negatively correlated with *pleasure* (achieving happiness through engaging in pleasurable activities). In this study, we particularly focus on the predictive role of grit on flourishing.

Diener et al. (2010) conceptualized flourishing as an optimal psychological state which is characterized by having greater purpose in life, engagement in satisfying interpersonal relationships, feeling competent, and a higher sense of optimism. Flourishing essentially differs from existing conceptual frameworks of well-being (e.g., subjective well-being) in that flourishing involves positive feelings and effective psychological functioning. The extant literature has shown that flourishing was positively associated with satisfaction of basic psychological needs for autonomy, relatedness, and competence and psychological well-being (Diener et al., 2010). Past studies have also revealed that there are person-related predictors of flourishing such as emotional intelligence (Schutte & Loi, 2014), self-efficacy (Bakker & Sanz-Vergel, 2013), and optimism (Bakker & Sanz-Vergel, 2013). Hence, our study hopes to contribute to flourishing literature through examining whether grit would predict flourishing. To the best of our knowledge, there is no existing research linking grit to flourishing.

Culture and Grit

Henrich, Heine, and Norenzayan (2010) argued that there is a need to practice caution in automatically generalizing results of Western studies in non-WEIRD (Western, educated, industrialized, rich, and democratic) contexts. It is important to examine whether these findings on the psychological benefits of grit may be applicable in collectivist sociocultural settings.

Individuals in Western settings are primarily driven to maintain an independent self where personal dispositions and goals are prioritized (Markus & Kitayama, 1991). On the other hand, individuals in collectivist cultures prioritize interpersonal relationships and have a more salient interdependent self. Given these key cross-cultural differences in how people see themselves, it may be invalid to automatically assume that findings about findings would be generalizable in collectivist contexts.

To further support our contention about the need to assess the applicability of grit across cultures, King and McInerney (2014) argued that culture plays a central role in shaping the way psychological constructs operate in diverse contexts. They argued that cross-cultural differences may take different forms. It is possible that psychological constructs exhibit differential salience as well as differential nomological networks. The distinct cultural expectations and norms in Western and Asian sociocultural settings would account for the differential impact of specific psychological variables on various outcomes.

Consistent with this conjecture, Markus and Kitayama (1991) assumed that individuals in Western societies are driven to engage in behaviors that would express their personal dispositions and wants, while those in collectivist cultures are eager to engage in actions that would satisfy other's wants and maintain harmonious relationships. Thus, it is probable that psychological variables which would enable individuals in various settings to meet their respective cultural tasks may exert stronger impact on positive psychological outcomes.

Whereas individuals in Western settings are driven to endorse individual-oriented achievement motivation (IOAM) which is characterized by desire to excel academically to meet self-determined standards, those in collectivist contexts espouse social-oriented achievement motivation (SOAM) which is typified by drive to excel in schooling to fulfill significant others' expectations (Yu & Yang, 1994). Furthermore, Dekker and Fisher (2008) found that while mastery goals (drive to learn to genuinely understand and acquire new skills from course) were related to positive educational outcomes like academic achievement in individualist settings, performance goals (drive to learn to show greater competence relative to classmates' performance) were positively correlated with optimal academic outcomes in collectivist contexts. In addition, the predictive effects of both mastery and performance goals on various academic outcomes were stronger in the United States than in China (Xiang, Lee, & Solmon, 1997). These differential predictions raise the possibility that the nomological network of grit in a collectivist context may not necessarily be the same as what has been found in Western cultures. In this study, we sample students from the Philippines which is considered a collectivist culture.

The Philippine Context

Previous studies have shown that Filipino espoused a relational self which is a salient characteristic of individuals in collectivist cultures (Ching et al., 2014; Datu, 2014; Grimm, Church, Katigbak, & Reyes, 1999). The current social and contextual characteristics of the Philippine context could potentially elucidate why grit is a very interesting and relevant line of inquiry. With the recent implementation of the K-12 educational system, we believe that there is a need to examine durable psychological resources that could assist Filipino students in finishing basic education despite the additional 2 years that they need to go through. In the past, Filipino students only had to undergo 6 years of primary and 4 years of secondary school before they progress to a university.

Assessing the extent to which grit predicts positive student outcomes would offer potential insights on how educators can help students succeed in school. Given that individuals in Western settings are primarily driven to maintain an independent self where personal dispositions and goals are prioritized (Markus & Kitayama, 1991), it may be invalid to automatically assume that these findings would be generalizable in collectivist contexts where people are likely to endorse a highly relational self.

The Present Study

The primary objective of the current research was to assess how grit is associated with pertinent educational and well-being outcomes. Our study offers three key contributions to the extant literature. First, while most of the existing studies treated grit as a composite of two dimensions (e.g., Duckworth et al., 2007; Duckworth & Quinn, 2009; Strayhorn, 2014) because it had stronger predictive effects on key psychological outcomes (Duckworth et al., 2007), our empirical investigation tested whether the grit composite score or its dimensions (*consistency of interest* and *perseverance of effort*) would have greater impact on student outcomes.

Second, whereas previous studies found that grit was positively correlated with optimal psychological outcomes such as orientations to happiness (Von Culin et al., 2014), meaning in life (Kleiman et al., 2013), and academic performance (e.g., Duckworth et al., 2007; Duckworth & Quinn, 2009; Strayhorn, 2014) in Western settings, our research investigated the relationship of grit with positive academic and well-being outcomes in a non-Western context. Third, our research expands the current literature on the psychological benefits of grit since to date, no empirical investigation was carried out to examine the impact of grit on academic engagement and flourishing.

Methods

Participants

All Filipino high school students ($n = 606$) who were presently enrolled in a private basic educational institution in Metro Manila were selected as participants in the current research. The mean age of the current sample is 13.87. There were 305 female and 300 male participants, while 1 participant failed to report gender. Most of the participants were Grade 7 ($n = 255$) followed by Grade 10 ($n = 144$). Before the data collection phase, the approval to implement the present study was sought from the principal of the institution. All the participants voluntarily agreed to participate in the current project.

Instruments

Short Grit Scale (Grit-S) The Grit-S (Duckworth & Quinn, 2009) is an 8-item instrument that measures dispositional tendency to endorse persistence for long-term goals. It has two dimensions: *consistency of interests* (e.g., "New ideas and projects sometimes distract me from previous ones") and *perseverance of effort* (e.g., "I am diligent"). All items were measured on a 5-point Likert scale wherein

answering 1 would mean "not like me at all," while responding 5 would mean "very much like me." The English version of the Grit-S was used in the current study. Cronbach's alpha internal reliability coefficients of *consistency of interests* and *perseverance of effort* are $\alpha = .64$ and $\alpha = .60$, respectively. Cronbach's alpha for the composite grit scale is $\alpha = .60$.

Student Engagement Scale The student engagement scale (Skinner et al., 2009) is a 20-item questionnaire that aims to measure behavioral engagement, emotional engagement, behavioral disengagement, and emotional disengagement. The items are gauged on a 4-point Likert scale (1 = not at all true, 4 = very true). Sample items in each dimension include "In class, I work as hard as I can" (behavioral engagement); "Class is fun" (emotional engagement); "When I'm in class, I think about other things" (behavioral disengagement); and "When I'm in class, I feel bad" (emotional disengagement). Cronbach's alpha reliability coefficients of the engagement dimensions are the following: behavioral engagement = .71, emotional engagement = .70, behavioral disengagement = .74, and emotional disengagement = .76.

Flourishing Scale (FS) The FS (Diener et al., 2010) is an 8-item questionnaire that aims to gauge "social-psychological prosperity" such as meaningful life (I live a purposeful and meaningful life), rewarding social relationships (My social relationships are supportive and rewarding), and others. All items were answered on a 7-point scale with 1 indicating "strongly disagree," while 7 signifying "strongly agree." Cronbach's alpha reliability coefficient of the scale in the present study is .85.

Data Analysis

The current research employed several statistical procedures through the 20th version of the Statistical Package for Social Sciences (SPSS) to test the research hypotheses. First, the descriptive statistical measure (e.g., mean and standard deviation) was computed. Second, correlational analyses between grit and educational and well-being outcomes were carried out. Third, the usefulness analysis approach (Darlington, 1990) was used to examine whether grit as an omnibus construct (comprised of *consistency of interest* and *perseverance of effort*) or whether treating grit as comprised of two distinct yet correlated dimensions was more "useful" in predicting educational and well-being outcomes.

To conduct the usefulness analysis, each dimension (*consistency of interest* and *perseverance of effort*) of grit will be entered in step 1, while the composite grit was entered in step 2 in a hierarchical regression model. A significant beta coefficient in step 2 would indicate that overall grit predicted the outcomes beyond the influence of its dimensions. In the next series of regression models, the composite grit score will be entered in step 1, while each of the independent dimensions will be entered in step 2. Similarly, a significant beta coefficient in step 2 would mean that the dimensions predicted the outcome beyond the effects of the omnibus grit construct.

The results of these regression models were used to determine if using either the composite grit score or its individual dimensions would be more useful in assessing the effects of grit on theoretically relevant outcomes.

Fourth, path analysis was performed using the 18th version of SPSS AMOS to examine the predictive effects of each dimension of grit on educational and well-being outcomes. Consistent with the criteria in determining good-fitting models of Byrne (2010), the following cutoff values were used in the present research; CFI, GFI, and TLI should be greater than .90; and RMSEA should be lower than .08.

Results

Descriptive Statistics and Bivariate Correlations

The results of descriptive statistics and correlational analyses are shown in Table 31.1. *Consistency of interests* was not significantly correlated with *perseverance of effort*. *Perseverance of effort* was positively associated with all dimensions of academic engagement (i.e., behavioral engagement and emotional engagement), while *consistency of interests* was not significantly correlated with academic engagement. Both dimensions of grit were negatively correlated with academic disengagement. *Perseverance of effort* was positively correlated with flourishing.

Usefulness Analysis Approach

To determine if the grit composite would have stronger predictive effects on educational and well-being outcomes than each of its individual dimensions, the usefulness analysis approach was utilized. A series of hierarchical regression analyses were performed, wherein each dimension (*consistency* and *perseverance*) was entered in step 1, while the grit composite was entered in step 2 to assess if grit composite would have incremental validity beyond *consistency* or *perseverance* in predicting behavioral engagement, emotional engagement, behavioral disengagement, emotional disengagement, and flourishing. A significant beta coefficient in step 2 would mean that grit composite strongly predicted the outcome variables beyond the effects of each dimension. The results indicated that the grit composite had incremental validity over *consistency* or *perseverance* in 7 out of 10 regression models (see Tables 31.2 and 31.3).

On the other hand, a series of hierarchical regression analyses were executed to assess if each dimension of grit (*consistency* or *perseverance*) would serve as a stronger predictor of educational and well-being outcomes beyond the impact of the grit composite. In step 1, the grit composite was entered as the predictor, while each dimension (*consistency* and *perseverance*) was entered as the predictor variable in

Table 31.1 Descriptive statistics and correlational coefficients among the variables

Variable	M	SD	r							
			1	2	3	4	5	6	7	8
1. Perseverance	3.53	.64	–							
2. Consistency	2.97	.71	−.01	–						
3. Behavioral engagement	3.15	.52	.48*	.04	–	–	–	–	–	
4. Emotional engagement	3.17	.54	.36*	.01	.47*	−.17*	.58*	−.11*		
5. Behavioral disengagement	2.12	.64	−.18*	−.33*	−.29*	.30*	−.23*			
6. Emotional disengagement	1.78	.62	−.11*	−.27*	−.12*	.43*				
7. Flourishing	5.49	.89	.50*	.02	.40*					
8. Grit	3.25	.48	.67*	.74*	.33*	.25*	−36*	−.27*	.34*	–

Note: * *p* < .01. Perseverance refers to perseverance of effort; consistency refers to consistency of interests; while grit refers to the overall grit score comprised of both perseverance of effort and consistency of interests

step 2 of the regression equation. If the beta coefficient in step 2 is significant, then the dimension had incremental validity over grit composite in predicting the above-mentioned outcomes. The findings of the aforementioned hierarchical regression analyses revealed that *consistency of interests* and *perseverance of effort* had incremental validity over the grit composite in 10 out of the 10 regression models (See Tables 31.2 and 31.3).

Taken together, the findings of the 20 regression models indicated that it is better to examine the individual dimensions of grit compared to the grit composite score in predicting educational and well-being outcomes. Consequently, both *consistency of interests* and *perseverance of effort* were used as antecedents of educational and well-being outcomes in the subsequent analyses.

Path Analysis

Next, we examined the predictive effects of each dimension of grit on the outcome variables through path analysis. In the baseline model, all the possible paths from grit dimensions to academic engagement, disengagement, and flourishing were tested. Most of the fit indices of the said model are within the acceptable range of values except for the RMSEA. Next, all the nonsignificant paths (i.e., *consistency of interests* → behavioral engagement, *consistency of interests* → emotional engagement, *consistency of interests* → flourishing) were removed in the final model. This model had excellent fit indices. Model 1 and Model 2 were not significantly different based on the results of chi-square difference test (χ^2 difference = 1.39, df

Table 31.2 Regression analyses of grit composite, its dimensions, and positive student outcomes

	Behavioral engagement			Emotional engagement			Flourishing		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
Consistency and grit as predictors of academic engagement and flourishing									
Step 1 Consistency	.46	.00		−.39*	.00		−.53*	.000	
Step 2 Grit	.67*	.20*	0.20*	.54*	0.13*	.13*	.74*	.25*	.25*
Grit and consistency as predictors of academic engagement and flourishing									
Step 1 Grit	. 67*	.11*		.54*	.06*		.74*	.13*	
Step 2 Consistency	−.46*	.20*	.09*	−.39*	13*	.07*	−.53*	.25*	.13*
Perseverance and grit as predictors of academic engagement and flourishing									
Step 1 Perseverance	.41*	.20*		.35*	.13*		.48*	.25*	
Step 2 Grit	.05	.202	.002	.02	.13	.00	.03	.25	.00
Grit and perseverance as predictors of academic engagement and flourishing									
Step 1 Grit	.05	.11*		.02	.06*		.03	.12*	
Step 2 Perseverance	.41*	.20*	.09*	.35*	.13*	.07*	.48*	.25*	.13*

Note: The standardized beta coefficients are displayed in the regression models. Consistency refers to consistency of interests, while perseverance refers to perseverance of effort. Grit refers to the omnibus grit construct comprised of both consistency of interests and perseverance of effort
* $p < .001$

Table 31.3 Regression analyses of grit composite, its dimensions, and negative student outcomes

	Behavioral disengagement			Emotional disengagement		
	β	R^2	ΔR^2	β	R^2	ΔR^2
Consistency and grit as predictors of academic disengagement						
Step 1 Consistency	−.13*	.11**		−.15*	.07**	
Step 2 Grit	−.27**	.14**	.03**	−.16**	.08**	.01**
Grit and consistency as predictors of academic disengagement						
Step 1 Grit	−.13*	.132**		−.16**	.07**	
Step 2 Consistency	−.27**	.139*	.008*	−.15*	.08**	.01*
Perseverance and grit as predictors of academic disengagement						
Step 1 Perseverance	.12*	.03**		.13*	.01**	
Step 2 Grit	−.44**	.14**	.11**	−.36**	.08**	.07**
Grit and perseverance as predictors of academic disengagement						
Step 1 Grit	−.44**	.132**		−.36**	.07**	
Step 2 Perseverance	.12*	.139*	.008*	.13*	.08*	.01*

Note: Only standardized beta coefficients are displayed in the table
* $p < .05$, ** $p < .01$

Table 31.4 Fit indices of the path models

	χ^2	df	χ^2/df	p	CFI	GFI	TLI	RMSEA
Baseline model	10.60	2	5.30	.005	.991	.995	.908	.084
Final model	11.99	6	2.00	.06	.994	.994	.979	.041

Note: *CFI* Comparative fit index, *GFI* goodness of fit index, *TLI* Tucker-Lewis index, *RMSEA* root mean square error of approximation

difference=4, p>.90). The final model was therefore utilized to explain the relations between grit and optimal psychological outcomes.

Evidently, the examination of the paths of grit dimensions to the academic engagement and flourishing revealed that *perseverance of effort* positively predicted behavioral engagement, emotional engagement, and flourishing. Moreover, *consistency of interests* and *perseverance of effort* negatively predicted behavioral disengagement and emotional disengagement (Table 31.4).

Discussion and Conclusions

The main purpose of the present study was to assess how grit was associated with educational and well-being outcomes in a collectivist culture. Passion and determination for long-term goals were positively associated with greater academic engagement and well-being. However, *perseverance of effort* seemed to be a more important predictor of optimal psychological outcomes compared to *consistency of interests*.

One interesting aspect of our research points to the relative importance of examining each dimension of grit (*consistency of interests* and *perseverance of effort*) compared to the composite grit score in a collectivist context. This was inconsistent with the results of Duckworth et al.'s (2007) study which found that the predictive impact of grit composite was stronger than each of its individual dimensions on several educational outcomes. These results demonstrate that examining the differential contribution of each grit dimension would offer more promising insights on the ability of passion for long-term aspirations to determine positive student outcomes in interdependent settings (Fig. 31.1).

The results of path analysis showed an interesting pattern of predictive relationships between grit dimensions and optimal psychological outcomes. Particularly, *perseverance of effort* positively predicted behavioral engagement, emotional engagement, and flourishing. This implies that when Filipino students are inclined to pursue long-term goals with zeal and determination, they would not only vigorously participate and feel confident in accomplishing classroom tasks but also would perceive that life is full of meaning and success. These findings corroborated extant studies on the beneficial influence of grit on educational outcomes like academic performance (Duckworth et al., 2007; Duckworth & Quinn, 2009; Strayhorn, 2014). The results were also consistent with previous studies on positive consequences of grit on well-being outcomes such as meaning in life (Kleiman et al.,
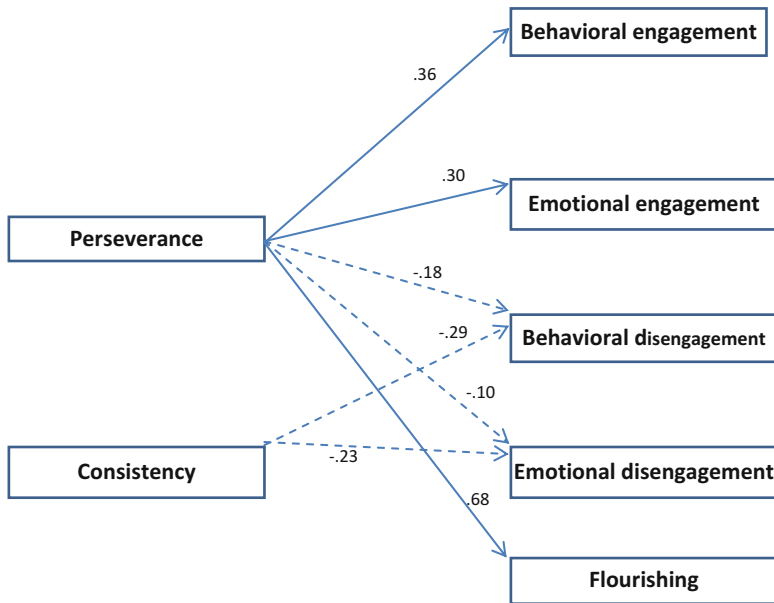
Fig. 31.1 Final model on the differential impact of grit dimensions on educational and well-being outcomes. Note: all paths are significant at $p < .01$ level

2013) and specific approaches to happiness (*meaning* and *engagement*) (Von Culin et al., 2014).

Both *consistency of interests* and *perseverance of effort* negatively predicted behavioral and emotional disengagement. These suggest that higher dispositions to endorse similar interest and determination to accomplish goals that require several months or years of effort would reduce students' inclination to passively take part and feel discouraged in undertaking academic activities in the classroom settings.

Yet, *consistency of interests* did not significantly predict behavioral engagement, emotional engagement, and flourishing. This implies that inclinations to adopt a steady range of interests for a relatively longer period of time may not necessarily lead to positive psychological outcomes among students in an interdependent context. While it seems that these results did not support the original grit framework on the essential role of endorsing consistent interests on various outcomes (Duckworth et al., 2007), we argue that these findings provide interesting insights on how grit operates differently in a collectivist sociocultural setting.

We contend that one potential reason for the inability of *consistency of interests* to predict optimal psychological outcomes is due to the cultural differences in behavior consistency or traitedness. Markus and Kitayama (1998) conceptualized behavior consistency as the relative stability of behaviors in various circumstances across cultures. On one hand, individuals in Western settings are inclined to show greater behavior consistency because the prescribed cultural canon involves behaving in ways that are consistent with one's dispositions, preferences, and values

(Markus & Kitayama, 1991). On the other hand, people in collectivist cultures are prone to manifest lower behavior consistency since the primary cultural norm encompasses engaging in actions that satisfy other's expectations to maintain pleasant relationships. Moreover, individuals in interdependent settings are encouraged to espouse behavior variability which enables them to effectively adjust with changing situations and contexts. Hence, in collectivist sociocultural milieus where people are accustomed to the importance of constantly adjusting one's wants or interests with others' expectations, it seems logical that *consistency of interests* would not facilitate positive psychological outcomes.

In general, the nonsignificant paths of *consistency of interests* on academic engagement and flourishing supported our conjecture on the necessity to examine the relationship of grit with positive psychological outcomes in collectivist cultures. These results clearly suggest that the extent to which grit affects important academic and well-being indices may be contingent on the nature of an individual's sociocultural environment. These findings were also consistent with the extant literature on achievement motivation especially in the fundamental role of culture in shaping student's academic motivation (King & McInerney, 2014). For example, students in Western settings are more likely to appreciate the advantageous side of mastery goals on academic performance since they are culturally expected to learn things on their own unlike students in collectivist societies who are more prone to realize the functional side of performance goals because they are embedded in a culture where social and contextual factors (e.g., classmates' performance) shape important academic behaviors (Dekker & Fischer, 2008). Hence, it seems logical to believe that culture plays an imperative role even in the endorsement of determination and perseverance for long-term goals.

In spite of the potential utility in expanding grit literature, several limitations should be noted. First, our research employed a cross-sectional approach; thus, we recommend future studies to use longitudinal and experimental approaches to address the methodological limitation in our study. Second, our study recruited Filipino high school students in Metro Manila, so we encourage future researchers to consider selecting students from other non-WEIRD societies in testing the positive effects of grit on positive psychological outcomes. Third, we only used self-report ratings in measuring the psychological constructs in the present research. Thus, we recommend that future studies should utilize other approaches like teacher reports of the aforementioned variables.

Implications

Our study has several important theoretical and practical implications. Our research expands current theoretical conversations on grit through showing that individually examining the dimensions of grit exerted stronger predictive validity on educational and well-being outcomes over and beyond the grit composite in a collectivist context which is not consistent with Duckworth et al.'s (2007) contention on the

superior predictive validity of grit composite. Our study also showed that only *perseverance of effort* consistently predicted academic engagement and flourishing since to our knowledge, this is the first empirical investigation that tested the said pattern of predictive relationships. Taken together, these theoretical contributions propose that espousing determination for long-term aspirations is a relevant line of inquiry in the Philippine context.

One notable practical implication of our research points to the necessity to formulate developmentally graded student programs that emphasize and nurture Filipino basic education students' inclinations to think, plan, and implement long-term aspirations so that they can effectively adjust with the recent implementation of K-12 educational system in the Philippines. Also, our research has significant implications to psychological measurement of grit especially in collectivist contexts. The relatively low reliability coefficients of the Short Grit Scale (Grit-S) and the nonsignificant correlation between *consistency of interests* and *perseverance of effort* imply that there is a need to further assess the psychometric properties of grit scales in non-Western settings. However, a more promising empirical direction is to develop a culturally applicable measure of grit that would accurately capture the passion and determination for long-term aspirations among people in individualist and collectivist sociocultural milieus.

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Part VIII
Learning Environments

Chapter 32
Academically At-risk Adolescents in Singapore: The Importance of Teacher Support in Promoting Academic Engagement

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Abstract The purpose of this study was to examine the associations of teacher support and teacher–student relationship with the academic engagement of 1469 Secondary 1 (Grade 7) students in Singapore. The students were identified as academically at risk based on the results of a national test given at the end of Primary 6 (Grade 6). Teacher autonomy and competence support, along with trust accorded to teachers, were found as significant positive predictors of the students' academic engagement. In general, alienation of students from teachers and quality of students' communication with teachers did not emerge as significant predictors of academic engagement. It was also found that, compared to the students in the high-risk group, the students in the low-risk group tended to be more engaged in class and perceived higher levels of trust and competence support from their teachers. There was no significant difference in the degree of teacher autonomy support that was reported by low-risk and high-risk students. However, teacher autonomy support was found to be the strongest predictor of academic engagement for the entire sample of at-risk students, as well as in separate analyses focusing on high- and low-risk students. Implications for future research and school practice are discussed.

Introduction

Self-determination theory (SDT) claims that the satisfaction of the three basic psychological needs—autonomy, competence, and relatedness—is essential for humans to thrive in varied life domains (Deci & Ryan, 2000). Competence pertains to being

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effective in carrying out needed actions to achieve intended outcomes; relatedness refers to developing secure connections with others; and autonomy is associated with being able to initiate and regulate one's own actions (Deci, Vallerand, Pelletier, & Ryan, 1991). Social contexts that facilitate fulfillment of these basic needs enhance overall well-being of individuals and help them to achieve important life goals.

In educational settings, a multitude of studies (e.g., Brewster & Bowen, 2004; Klem & Connell, 2004; Skinner, Furrer, Marchand, & Kindermann, 2008) have demonstrated that fostering autonomy, competence, and relatedness is crucial in promoting positive learning outcomes among students. As students spend a significant amount of time in school, teachers become important adult figures in their lives (Cemalcilar, 2010) and, thus, play a key role in addressing students' needs and attaining optimal levels of academic functioning. This role is assumed to be more prominent for academically at-risk students, who usually come from disadvantaged homes, where the quality of familial support is usually low (Hamre & Pianta, 2001).

Teacher Support and Student Engagement

Providing support for autonomy, competence, and relatedness has been found to correlate with adaptive educational outcomes, notably in the areas of academic engagement and achievement (Brewster & Bowen, 2004; Klem & Connell, 2004; Skinner et al., 2008). Engagement pertains to "active, goal directed, flexible, constructive, persistent, and focused interactions with the social and physical environments" (Furrer & Skinner, 2003, p. 149). In relation to academic activities, engagement has been classified into three types: namely, behavioral, emotional and cognitive engagement. Behavioral engagement pertains to involvement in learning activities, paying attention (Skinner et al., 2008; Wang & Eccles, 2012), exercising positive behavior, and attending school (Wang & Eccles, 2012). Emotional engagement connotes positive emotional states, such as enthusiasm, interest, and enjoyment (Skinner et al., 2008) and sense of belonging in school (Wang & Eccles, 2012). Cognitive engagement connotes the use of self-regulated and metacognitive learning strategies (Wang & Eccles, 2012), active linking of new ideas with existing knowledge, and understanding of the topics being learned (Wolters, 2004). Several studies have shown that students who are engaged in class are less likely to drop out from schools (e.g., Finn & Rock, 1997) and more likely to have higher educational achievement (Finn & Rock, 1997; Fredricks, Blumenfeld, & Alison, 2004; Skinner & Belmont, 1993), while students with low levels of engagement are at risk for a variety of long-term adverse consequences, including disruptive behavior in class, absenteeism, and dropping out of school (Klem & Connell, 2004).

Autonomy Support, Competence Support, and Academic Engagement Teachers can develop students' sense of autonomy and competence in varied ways. Autonomy can be supported by considering students' views, identifying and supporting students' needs and choices (Jang, Reeve, & Deci, 2010), and providing opportunities for them to exercise self-directedness in carrying out learning activities (Brophy,

2010). Competence can be enhanced by helping students feel or realize that they are capable of doing particular tasks (Standage, Duda, & Ntoumanis, 2005), giving appropriate feedback (see review of Yeh, 2010), and providing optimal structure (Skinner & Belmont, 1993). Structure can be provided by presenting clear expectations and goals and by matching teaching approaches with students' abilities (Skinner & Belmont, 1993).

A substantial body of literature, which was based mostly on Western samples, upholds the view that teacher competence and autonomy support have strong links with elementary and/or secondary students' academic engagement (Jang et al., 2010; Klem & Connell, 2004; Skinner et al., 2008). Skinner et al. reported that both types of teacher support predicted students' gains in behavioral and emotional engagement and drop in disaffection. Klem and Connell (2004) reported that stronger autonomy and competence support from teachers were positively associated with school engagement indicators (as reported by teachers and students) that predominantly represented the behavioral domain. Jang et al. (2010) concluded that teacher autonomy support positively influenced a broader range of engagement dimensions (behavioral, emotional, and cognitive), but the influence of competence support was restricted to behavioral engagement.

Some cross-cultural researchers (e.g., Iyengar & Lepper, 1999; Markus & Kitayama, 1991) argue that Asian societies, which are commonly understood to reflect a more collectivistic, relationalistic, and/or authority-centric cultural orientation (Ho & Crookall, 1995), may ascribe lower priority to the satisfaction of autonomy, as compared to Western societies that are more associated with individualistic cultural orientations. In the context of education, there have been claims that the importance placed to an "interdependent self" in collectivist cultures (Markus & Kitayama, 2003, p. 227) may not be compatible with the notion of an autonomous learner that Western cultures associate with independent and critical thinkers (see, e.g., Murphy, 1987). Thus, the literature seems conflicted with regard to the importance of autonomy support for students in collectivist cultures. Some studies have shown positive effects of autonomy support (e.g., D' Ailly, 2003; Jang, Reeve, Ryan, and Kim 2009), while other studies seemed to question its utility (see King & McInerney, 2014 for a review). Moreover, the strong endorsement of high academic aspirations among students in Asian societies (Biggs, 1994; Schneider & Lee, 1990) would also warrant the view that competence support could be a more salient factor than autonomy support in promoting high academic functioning and well-being.

Teacher–student Relatedness and Academic Engagement To address students' need for connectedness in school settings, cultivation of teacher–student relatedness is paramount (Skinner & Belmont, 1993). Openness during interactions and gestures showing care, trust, and confidence are important in developing high-quality teacher–student relationships (Murray & Zvoch, 2011). A rapidly expanding evidence base indicates that teacher–student relatedness influences students academically (e.g., Furrer & Skinner, 2003; Hamre & Pianta, 2012; Hughes & Kwok, 2007; Short, 2013), as well as psychologically (Furrer & Skinner, 2003; Klem & Connell, 2004; Osterman, 2000). Hattie's (2009) landmark study, which synthesized the results of more than 800 educational studies, ranked teacher–student relationship in

the top ten most influential determinants of students' academic achievement. Other researchers concluded that positive teacher–student relationship is associated with students' self-esteem, sense of competency, and emotional connectedness (Furrer & Skinner, 2003; Osterman, 2000) and emotional engagement (Short, 2013). Specifically, teachers' trust in students, as well as parents, was found to be a significant positive predictor of students' academic engagement (Brewster & Bowen, 2004; Chen, 2005) and achievement (Goddard, Tschannen-Moran, & Hoy, 2001).

The emphasis on interdependence and the will to belong to a group that is common in Asian societies may suggest that positive relationships can play a particularly important role in promoting positive academic outcomes. Chen and Astor (2011) identified poor teacher–student relationships and low behavioral engagement as powerful factors associated with Taiwanese elementary students' perpetration of school violence. In this study, poor teacher–student relationships were operationalized in terms of students' perceptions of their teachers' distrust in them, dislike or mocking of them, and enacting unfair punishment toward them—all behaviors pointing to a general sense of alienation and low levels of trust between the student and the teacher.

The importance of students' perceived trust from teachers among Asian students in promoting positive schooling outcomes (e.g., academic motivation and achievement) was further supported by Lee's study (2007), which involved Korean middle school students. In this study, the author found that students' sense of trust in their teachers—measured by a combination of cognitive and affective trust in their teachers (i.e., teachers' knowledge in their subject and teachers caring about them and looking out for them in school)—emerged as a significant predictor of school success (i.e., positive school adjustment, academic motivation, and performance). The author also suggested that fostering teacher–student trust is of particular pertinence to students in high-performing education systems such as Korea, where general distrust in schools and teachers, especially on the development of essential competencies among secondary school students, has heightened students' anxiety, maladjustment, and confusion (Lee, 2007). While numerous studies focusing on Western student samples have shown the importance of teacher–student trust relationships, especially affective trust, in fostering positive learning outcomes (e.g., Hughes & Kwok, 2007; Roorda, Koomen, Spilt, & Oort, 2011), empirical studies of this nature are sorely lacking in relation to other cultures, particularly Asian societies.

Teacher Support for Autonomy, Competence, and Relatedness for At-risk Students Prior research highlighting the importance of teachers' roles in promoting students' engagement and other learning outcomes has focused on mainstream samples of students (Hamre & Pianta, 2006, 2012). However, there is an emerging literature base suggesting that teacher support may be particularly critical for academically at-risk students, who are noted to manifest lower levels of participation in academic activities (Finn, 1993; Klem & Connell, 2004). Teacher behavior in the classroom may serve as an aggravating or ameliorating factor for students who have lower levels of engagement and achievement (Chen & Astor, 2011). This notion is entwined with the reported reciprocal association between the quality of

teacher support and student engagement (Hughes & Kwok, 2007; Skinner & Belmont, 1993). Some teachers may respond negatively to students' lack of engagement in class as these students may make them feel less liked or less competent; as a result, teachers may provide less feedback, implement more control measures that inhibit students' autonomy, or undermine teacher–student relatedness by spending less time with these students (Skinner & Belmont, 1993). The parallel upshot, however, is that some teachers may choose to provide more support for disengaged students (Klem & Connell, 2004; Skinner & Belmont, 1993); these students, in turn, may feel that their needs are met and, accordingly, become more active in class. Teachers who convey emotional warmth and acceptance and take time to communicate to students stimulate the positive relational processes that have been reported to maintain students' academic and social pursuits, which in turn lead to better grades and more positive peer relationships (Hamre & Pianta, 2006, 2012). And teachers' provision of emotional (e.g., actions considering students' needs and showing positive regard to students) and instructional (e.g., giving feedback, asking open-ended questions) support was found to be associated with positive teacher-student relatedness and achievement scores of children facing risk of school failure (Hamre & Pianta, 2005).

The multitude of risk factors faced by academically at-risk students further point to the potential benefits that they can gain from enhanced teacher autonomy, competence, and relatedness support, although variation in the relative effects of these forms of support may be observed. Low-performing students have been shown to be low in self-regulation (VanZile-Tamsen & Livingston, 1999) and, thus, are likely to gain more benefits from autonomy-supportive teachers compared to students with better self-regulation skills, such as low-risk students (based on Black & Deci, 2000). Students facing high risk of continued low achievement may also be more sensitive to competence support than their low-risk counterparts noting that the former tend to have more negative experiences with competence issues. Teachers' influence on students' academic outcomes is also likely to be more linked with the quality of competence support on students than with relatedness and autonomy support; influencing students' achievement via strong relatedness support is likely to be the realm of family and friends than of teachers (see Legault, Green-Demers, & Pelletier, 2006). However, parents' influence may decline when students approach adolescence (Laursen & Collins, 2009); thus, students' relatedness with teachers could be more valuable than autonomy and competence support in buffering the negative effects of academic, as well as life, stressors (Murray & Zvoch, 2011).

Purpose of This Study

Our review of the extant literature suggests that there remains a need for more studies to shed light on the applicability of SDT to a broader and more diverse sample of Asian students, such as students at risk of continued low achievement. A more nuanced understanding of the nature and related impact of varied forms of teacher

support on non-Western cultural societies is needed. To address this gap, the present study examines the quality of teacher–student relatedness, teacher competence and autonomy support, and academic engagement of a sample of students who were attending Singapore schools and were considered as academically at risk because of their lower scores (relative to the cohort mean) in a national achievement test given at the end of primary education. In examining teacher–student relatedness and academic engagement, their respective dimensions were considered separately rather than together (i.e., as omnibus variables). Variations in the associations between the dimensions of each construct were detected in previous studies that adopted a similar analytic approach (see Jang et al., 2010; Murray & Zvoch, 2011). In adopting this approach, we hoped to generate fine-grained insights that can illuminate teacher-supported conditions leading to adaptive outcomes among at-risk students.

Specifically, this study aims to answer the following research questions:

RQ1: Do the quality of teacher–student relationship and teacher support (autonomy support and competence support) predict academic engagement of academically at-risk students?

RQ2: Are the associations among teacher–student relationship, teacher support, and academic engagement invariant across students facing low risk and high risk of continued low achievement?

RQ3: Is there a significant difference in the quality of teacher–student relationship, teacher support, and academic engagement between high-risk and low-risk groups?

On the basis of the ideas presented in our review of related studies, we formulated the following hypotheses:

H1: Teacher competence and autonomy support, teachers' trust in students, and teacher–student communication would serve as positive predictors of academic engagement; however, students' perceived alienation from teachers was expected to be a significant negative predictor of academic engagement.

H2: The relationships mentioned in H1 would be invariant across students facing low risk and high risk of continued low achievement.

H3a: Academic engagement, the quality of student-perceived teacher support, teacher–student communication, and teachers' trust in students would be significantly higher for low-risk than high-risk students.

H3b: Teacher–student alienation would be significantly higher for the high-risk than for the low-risk students.

In exploring the interaction among teacher support and risk levels within an Asian context, we hope to generate richer insights into the usefulness of SDT by extending its range of application.

Methodology

Participants

A total of 1469 Secondary 1 (Grade 7) students from 23 government schools in Singapore participated in the study. Most of the participating schools ($n = 21$) were selected using cluster random sampling: Six schools were randomly selected from each of the four school clusters that were formed according to geographical location (i.e., North, South, West, and East); two schools were selected via convenience sampling to replace randomly selected schools that declined our invitation. For each school, about two to three classes of students were allowed by the school principals to participate in the study. The student sample comprised 63 % males and 37 % females. The students' age ranged from 11 to 14 years, with 89 % being 12 to 13 years old. Based on fathers' ethnicity, about 46 % of the students were Chinese, 28 % were Malays, 9 % were Indians, and 8 % were from other ethnic or racial backgrounds, and the ethnic information of the rest was not given by the schools.

Most students in Singapore are placed into three different streams—Normal Academic (NA), Normal Technical (NT), and Express—on the basis of their performance on a national examination given at the end of their elementary school years (Ministry of Education [MOE], 2014). The present sample comprised 927 and 497 students from the NT and NA streams, respectively. Students from the Express stream were not included in this study. The national examination scores of the NT students in the current sample ranged from 25 to 166 (median = 135), and those of the NA students ranged from 139 to 229 (median = 172). We regarded the NA and NT students as academically at risk, considering their relatively lower initial achievement during their entry to secondary school compared to that of Express students (based on Cappella & Weinstein, 2001).

Measures

Noting the indications of the domain specificity of academic engagement found in prior studies (e.g., Martin, 2008), all measures that we used in this study were focused on the English subject domain. Using a domain-specific approach is likely to generate more precise insights that would be useful to educators and stakeholders in developing targeted strategies aiming to help academically at-risk students who typically face language difficulties.

Teacher Autonomy and Competence Support We used 6 of the 15 items from the Learning Climate Questionnaire (Williams & Deci, 1996) to assess the teacher autonomy support (TAS). The TAS tapped the students' perceptions of the degree to which their English teachers recognize their capabilities, provide choices, and encourage them to express their views. An example of a TAS item is *I feel that my English teacher provides me choices and options*. The scale items required responses

ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Williams and Deci reported a unidimensional structure and good psychometric properties of the scale.

Teacher competence support (TCS) was assessed by four items that were based on Jang et al.'s (2010) bipolar scale. TCS was designed to tap students' perceptions of structure (in the form of clear goals and instruction), feedback, and appropriate tasks provided by their teachers. The four items were reworded into Likert-type items to resemble the TAS items. A sample TCS item is *My English teacher provides clear instructions that I understand*. The response scale used in TAS was also used for the TCS items, for consistency.

For the current sample, Cronbach's alpha coefficients for perceived English teacher autonomy (.97) and competence (.96) support were found very high.

Academic Engagement We used the child-report version of the behavioral engagement (BENG) and emotional engagement (EENG) scales of Skinner, Furrer, Marchand, and Kindermann (2008). Each dimension is composed of five items that required a response scale ranging from 1 (*almost never or never true*) to 4 (*almost always or always true*). BENG items (e.g., *I try hard to do well in school*) assessed the level of students' effort, attention, and persistence during class activities. EENG items (e.g., *Class is fun*) pertained to the degree of students' enthusiasm and enjoyment during learning activities. Earlier studies (Furrer & Skinner, 2003; Skinner et al., 2008) reported good internal consistencies (.72 to .86) and provided evidence for convergent validity of the behavioral and emotional engagement scales. For the current sample, Cronbach's alpha coefficients of emotional engagement and behavioral engagement subscales associated with English classes were found highly satisfactory—.91 and .93, respectively.

For cognitive engagement (CENG), we adapted four items from Wolters's (2004) learning strategy questionnaire (see also Reeve & Tseng, 2011). These items assessed the students' active role in learning and making meaning. For example, *I make up my own examples to help me understand important concepts*. Cronbach's alpha reliability of the scale was .92.

Teacher–Student Relatedness We used the Inventory of Teacher–Student Relatedness (ITSR, Murray & Zvoch, 2011) in determining the quality of teacher–student relatedness. It comprises three dimensions—*communication* (COMM), *trust* (TRUST), and *alienation* (ALIEN). COMM (five items) reflected students' openness in communicating their ideas with their English teachers (e.g., *I tell my English teacher about my problems and troubles*). TRUST (five items) pertained to students' perceptions of care, acceptance, and trust accorded to them by their English teachers (e.g., *My English teacher trusts me that I am good even if I don't realize it*). ALIEN (four items) tapped students' emotional detachment from their English teachers (e.g., *I don't believe what my English teacher says*).

The students were asked to rate their relationship with their English teachers using a four-point rating scale ranging from *1 (almost never or never true)* to *4 (almost always or always true)*. Based on the responses of the present sample, Cronbach's alpha reliability for the subscales ranged from .76 to .90.

Academic Achievement   To group the students according to various risk levels, we used their end-of-year school grades in English and their reading achievement. The latter was measured using the Progressive Achievement Test in Reading (PAT-R) Level 5 that was developed by the Australian Council for Educational Research (2014). PAT-R was found to have good psychometric properties using Australian students of similar age as the normative sample (Fogarty, 2007). We adapted the approach used by Waxman, Huang, and Padron (1997) and Finn and Rock (1997) in grouping academically at-risk students to different levels. *Low-risk* students (*n* = 399) had school grades of C and higher and reading achievement above the 11th percentile of the normative sample. *High-risk* students (*n* = 396) had grades below C and reading achievement at or below the 11th percentile of the normative sample. The rest of the students (*n* = 674) were classified into the *moderate-risk* group.

Data Collection

The participants and their parents were requested to sign assent and consent forms, respectively, prior to the start of the data collection. Members of the research team administered the combined survey instruments (30 minutes) and achievement test (40 minutes) via online platform.

Data Analysis

Preliminary Analysis   We used IBM SPSS 21.0 in conducting our data analyses. Out of the 1485 students in the original list of participants, 16 cases with 40 % or more of missing responses were deleted (based on Hair, Black, Babin, & Anderson, 2010). Most of these cases were absentees during some of the scheduled data collection periods. The missing responses for the remaining cases were assessed. At most, only 1.2 % of the responses per variable were found missing. Noting the small number of missing data and the possibility that data could be missing at random, the expectation–maximization algorithm was deemed as an appropriate imputation technique to replace missing values (based on Hair et al., 2010).

Before conducting the pertinent statistical analyses, relevant assumptions associated with multivariate statistical analyses were assessed based on the suggestions of Hair et al. (2010). Examination of Q–Q plots for each dimension of the constructs mentioned did not show gross violations of the normality assumption although we found that many of our variables were positively skewed. Considering the large sample size, we looked at z-scores with values of 4 and higher to identify univariate outliers: Only 12 outlying cases were identified using this cutoff value. Similarly, 47 of the students were considered as potential multivariate outliers, with responses associated with significant Mahalanobis distance (*p* < .001). There were no cases

that were found extreme outliers in a sufficient number of variables to be considered for deletion.

Assessing the Measurement and Structural Models The AMOS program in SPSS 21.0 was used in conducting confirmatory factor analysis (CFA, Arbuckle, 2012). The CFA conducted used maximum likelihood estimation to test the hypothesized structure of the variables. Multiple indices were considered in assessing and comparing the goodness of fit of five factorial models: RMSEA values of less than 0.6, SRMR values less than .08, and CFI values close to .95 were used as thresholds in representing adequately fitting model (Hu & Bentler, 1999). The hypothesized factor structures of the constructs were found to have a generally good fit with the data.

To address RQ1, we conducted structural equation modeling using a two-step approach (Hair et al., 2010). The first step involved testing the measurement model, and the second step focused on testing the theoretical linkages among the variables. The first step allowed the evaluation of convergent and discriminant validity, while the second step was used in assessing nomological validity. In testing the measurement model, we conducted a CFA with teacher support, teacher–student relatedness, and academic engagement modeled as latent constructs. Next, we tested the structural model. The structural model posits teacher autonomy support, teacher competence support, and teacher–student relatedness as predictors of each of the academic engagement subscales.

To answer RQ2, we conducted multigroup CFA. We carried out nested model comparisons in order to examine *configural equivalence* and *measurement equivalence* across academic risk groups. Step 1 focused on assessing configural equivalence: It was done by comparing the baseline models, which estimate measurement and latent construct parameters, for both groups (see Byrne, 2008). Step 2 involved the assessment of *measurement equivalence*, which required holding the factor structure and factor loadings equal across groups (see Byrne, 2008). Step 3 required constraining the factor structure, factor loadings, variances, and covariances to be the same across groups (see Byrne, 2008; Cheung & Rensvold, 2002). The difference in CFI was calculated in comparing the baseline model (with no invariance imposed) with the constrained models. A decrease in CFI of less than .01 was considered nonsignificant (Cheung & Rensvold, 2002)

To further address RQ2, we used the best-fitting structural model and repeated Steps 1 and 2 that were mentioned earlier. However, we modified Step 3 by holding the factor structure, loadings, and causal paths the same across risk groups (see Byrne, 2008; Cheung & Rensvold, 2002). The last step involved adding equal variance and covariances to the constraints introduced in Step 3. The difference in CFI for the baseline model (with no invariance imposed) and the constrained model was also compared.

In order to answer RQ3, we conducted a series of multivariate analysis of variance (MANOVA) to examine if risk group (low risk vs. high risk) has a significant effect on the three sets of dependent variables—teacher support, teacher–student relatedness, and academic engagement. We decided to exclude the moderate-risk

groups and compared only the variables associated with the low- and high-risk groups as we expected that these groups would have a more pronounced contrast in their profiles. We deemed that limiting our analyses to these groups would facilitate the interpretation of results.

Results

Goodness of Fit of the Measurement and Structural Models

The results of our initial analyses showed that all the central variables involved in the study, except ALIEN, were positively related to all the dimensions of academic engagement. ALIEN was found to be negatively correlated with all the engagement dimensions. The intercorrelations among the engagement subscales, between TRUST and COMM and between TCS and TAS, were moderate to high.

The hypothesized factor structures of teacher–student relatedness, perceived teacher support, and academic engagement were found to have a good fit to the data (see Table 32.1, Model 1). We also evaluated the fit of Model 2 that resembled Model 1 except that the errors of the engagement variables for the former were correlated. This was done noting the high intercorrelations among the engagement subscales (see Table 32.2), which was also reported in earlier studies (Skinner et al., 2008). The high modification indices associated with the correlation of the errors associated with the engagement subscales further justified the need to test Model 2. Compared to Model 1, Model 2 was found to have a better fit to the data. Thus, we adopted Model 2 as our final model for this study.

Our results provided partial support for *H1*. TAS and TCS were found as significant positive predictors of the students' academic engagement subscales; however, TRUST but not COMM emerged as a significant positive predictor of academic engagement (see Table 32.3). Our analysis also indicated that ALIEN served as a negative predictor of CENG but not of BENG and EENG: These findings generally

Table 32.1 Goodness of fit indices for the measurement model and structural model

Model	χ^2	df	χ^2/df	p	RMSEA	90 % CI RMSEA	SRMR	CFI
Measurement model	3206.03	637	5.033	<.001	.052	[.051, .054]	.0357	.947
Structural model 1	4691.28	639	7.342	<.001	.066	[.064, .067]	.0730	.917
Structural model 2[a]	3074.12	636	4.834	<.001	.051	[.049, .053]	.0358	.950

Note: *RMSEA* root mean square error of approximation, *SRMR* standardized root mean square residual, *CFI* comparative fit index

[a]Errors of the engagement subscales were correlated

Table 32.2 Intercorrelations among teacher support, teacher–student relatedness, and engagement subscales (*N*=1469)

Subscales	TAS	TCS	COMM	TRUST	ALIEN	BENG	EENG	CENG
TAS		.83**	.48**	.62**	−.22**	.62**	.70**	.64**
TCS			.40**	.59**	−.25**	.59**	.67**	.60**
COMM				.57**	.11**	.40**	.45**	.42**
TRUST					−.14**	.51**	.57**	.50**
ALIEN						−.15**	−.19**	−.10**
BENG							.82**	.78**
EENG								.81**
Cronbach's alpha (α)	.96	.96	.88	.88	.80	.90	.91	.92
90%CI α	[.96, .97]	[.95, .96]	[.87, .89]	[.87, .89]	[.79, .82]	[.90, .91]	[.90, .92]	[.91, .93]

Note: *TAS* teacher autonomy support, *TCS* teacher competence support, *COMM* communication with the teacher, *TRUST* trust in the teacher, *ALIEN* alienation from the teacher, *BENG* behavioral engagement, *EENG* emotional engagement, and *CENG* cognitive engagement, **$p<.01$

Table 32.3 Structural parameter estimates for the model relating teacher support and teacher–student relatedness with academic engagement

Structural relationship	Unstandardized parameter estimates	Standard error	*t*-value	Standardized parameter estimates
TAS → CENG	0.27	0.03	9.21***	0.46
TAS → BENG	0.21	0.03	6.85***	0.35
TAS → EENG	0.21	0.03	8.58***	0.40
TCS → CENG	0.09	0.03	3.52***	0.16
TCS → BENG	0.09	0.03	3.58***	0.17
TCS → EENG	0.11	0.02	5.18***	0.22
COMM → CENG	0.04	0.03	1.04	0.03
COMM → BENG	0.01	0.04	0.40	0.01
COMM → EENG	0.05	0.03	1.81	0.06
TRUST → CENG	0.14	0.04	3.56***	0.13
TRUST → BENG	0.21	0.04	5.27***	0.20
TRUST → EENG	0.17	0.03	5.37***	0.19
ALIEN → CENG	0.08	0.03	2.46*	0.07
ALIEN → BENG	−0.04	0.03	−1.10	−0.03
ALIEN → EENG	−0.04	0.03	−1.37	−0.04

Note: *TAS* teacher autonomy support, *TCS* teacher competence support, *COMM* communication with the teacher, *TRUST* trust in the teacher, *ALIEN* alienation from the teacher, *BENG* behavioral engagement, *EENG* emotional engagement, and *CENG* cognitive engagement
*$p<.05$, ***$p<.001$

contrasted with *H2*. TAS emerged as the strongest positive predictor of all engagement subscales. It was also found that TRUST and TCS had comparable influences on students' engagement.

Table 32.4 Invariance test of the measurement model across low-risk and high-risk students

Measurement model	χ^2	df	χ^2/df	RMSEA	RMSEA 90 % CI	SRMR	TLI	CFI	Change in CFI
Baseline model (no invariance imposed)	2952.05	1274	2.32	.041	[.039, .043]	.044	.928	.934	–
Invariant factor loadings	2992.70	1304	2.30	.040	[.039, .042]	.046	.929	.934	.000
Invariant factor variances and covariances	3192.34	1340	2.38	.042	[.040, .044]	.073	.924	.928	.006

Note: *RMSEA* root mean square error of approximation, *SRMR* standardized root mean square residual, *CFI* comparative fit index

Invariance of the Measurement and Structural Models Across Risk Groups

Both the measurement and structural models (i.e., Model 2) were tested for invariance across risk groups. We imposed increasing constraints on the multigroup CFA and SEM analyses (see Tables 32.4 and 32.5). Using Cheung and Rensvold's (2002) criterion (i.e., CFI change less than .01 as evidence of invariance), our results indicated that both the measurement and SEM models were invariant for the low- and high-risk groups thereby supporting *H2*.

Descriptive Statistics, Correlations, and MANOVA Results

To answer the third research question, we conducted MANOVAs using teacher competence and autonomy support, teacher–student relatedness subscales, and engagement subscales as dependent variables and risk group as between-subjects factor. The results generally showed that there were significant differences between high-risk and low-risk groups in relation to the overall and separate subscale scores, although the effect sizes were small.

Our results partially supported *H3a*. The effects of risk group were found significant on overall engagement (Pillai's trace = 0.94, $F(3,791) = 4.38$, $p < .01$, $\eta^2 = .02$), perceived teacher support (Pillai's trace = 0.94, $F(2,792) = 9.42$, $p < .001$, $\eta^2 = .02$), and teacher–student relatedness (Pillai's trace = 0.96, $F(3,791) = 33.65$, $p < .001$, $\eta^2 = .11$). Compared to the high-risk group, the low-risk group reported higher engagement scores (BENG, $F(1,793) = 12.08$, $p < .01$, $\eta^2 = .015$; EENG, $F(1,793) = 5.05$, $p = .025$, $\eta^2 = .006$; CEENG, $F(1,793) = 4.17$, $p = .042$), higher quality of perceived competence support ($F(1,793) = 24.61$, $p < .01$, $\eta^2 = .02$), and higher levels of trust ($F(1,793) = 11.42$, $p < .001$, $\eta^2 = .01$).

Table 32.5 Invariance test of the SEM model across low-risk and high-risk students

Structural model	χ^2	df	χ^2/df	RMSEA	RMSEA 90 % CI	SRMR	TLI	CFI	Change in CFI
Baseline model (no invariance imposed)	2830.31	1272	2.23	.039	[.037, .041]	.047	.932	.939	–
Invariant factor loadings	2873.68	1302	2.21	.039	[.037, .041]	.047	.933	.939	.000
Invariant structural weights	2907.82	1317	2.21	.039	[.037, .041]	.051	.934	.938	.001
Invariant factor variances and covariances	3066.43	1332	2.30	.041	[.039, .042]	.066	.928	.932	.008

Note: *RMSEA* root mean square error of approximation, *SRMR* standardized root mean square residual, *CFI* comparative fit index

Two findings contradicted *H3a*. Firstly, the teacher autonomy support received by low-risk and high-risk students was found to be statistically comparable ($F(1,793) = 1.61$, $p = .21$, $\eta^2 = .002$). Secondly, the high-risk students generally reported lower levels of COMM than did the low-risk students ($F(1,793) = 13.19$, $p < .01$, $\eta^2 = .03$).

Consistent with *H3b*, ALIEN ($F(1,793) = 21.48$, $p < .001$, $\eta^2 = .06$) was found to be higher for the high-risk than the low-risk students. Students in the high-risk group tended to feel more emotionally detached from their teachers than their low-risk peers (Table 32.6).

General Discussion

In this study, we focused on three indicators of a supportive context provided by teachers—autonomy support, competence support, and teacher–student relatedness—and their association with students' behavioral, cognitive and emotional engagement. In consonance with SDT, our analysis showed that teachers' autonomy and competence support and teachers' trust in students served as positive significant predictors of the full range of students' academic engagement. This association among our central constructs, along with the factor structure of the constructs, was found to be invariant across low-risk and high-risk students.

Compared to teacher–student relatedness and teacher competence support, teacher autonomy support was found to exert the strongest influence on all engagement dimensions. This finding is contrary to our prediction that competence support would be the most salient predictor of engagement compared to the other

Table 32.6 Descriptive statistics for low-risk group, high-risk group, and overall

Subscales	All (N=1469)		Low risk (n=399)		High risk (n=396)	
	Mean	SD	Mean	SD	Mean	SD
TAS	5.15	1.43	5.22	1.42	5.10	1.41
TCS	5.32	1.44	5.49**	1.37	5.14**	1.49
COMM	1.95	0.82	1.85**	0.77	2.11**	0.84
TRUST	2.70	0.84	2.84***	0.83	2.64***	0.83
ALIEN	1.91	0.67	1.77***	0.57	2.09***	0.78
BENG	2.86	0.76	2.97**	0.72	2.79**	0.76
EENG	2.84	0.81	2.91*	0.79	2.78*	0.80
CENG	2.73	0.81	2.80*	0.77	2.69*	0.81

Note: *TAS* teacher autonomy support, *TCS* teacher competence support, *COMM* communication with the teacher, *TRUST* trust in the teacher, *ALIEN* alienation from the teacher, *BENG* behavioral engagement, *EENG* emotional engagement, and *CENG* cognitive engagement
Significance of univariate tests, *p<.05, **p<.01, ***p<.001

predictor variables. This seems to contradict the position taken by cross-cultural researchers who question the role of autonomy support among Asian students (e.g., Markus & Kitayama, 2003). This empirical result is coherent with the assertions of other researchers (e.g., D' Ailly, 2003; Jang, Reeve, Ryan, & Kim 2009) that the satisfaction of the need for autonomy is also relevant to Asian students. This result also resonates with the conclusions drawn from Jang et al.'s study (2010), which also featured secondary students from the West: They found that teacher autonomy support predicted the three key dimensions of students' academic engagement, while competence support was found more narrowly associated with behavioral engagement. Thus, it appears that the critical role of teacher autonomy support in promoting students' academic engagement cuts across boundaries between Asian and Western cultures. This lends support to studies of cross-cultural educational researchers who have found broad similarities among the psychological factors that promote greater levels of achievement in Asian and Western contexts (Fok & Watkins, 2007; Watkins, 2010; Watkins, McInerney, Lee, Akande, & Regmi, 2002).

Furthermore, teachers' provision of autonomy support appears to be a potentially strong protective factor for academically at-risk students, noting that autonomy support served as a significant determinant of the academic engagement of both low-risk and high-risk students. However, there was no significant difference in the quality of autonomy support provided by the teachers as perceived by the low-risk and high-risk students. Given the fact that our sample involved students who were relatively lower performing compared to their peers in the mainstream track, it is possible that both the low- and high-risk groups in our sample had substantial proportions of students with low self-regulation abilities, as asserted by VanZile-Tamsen and Livingston (1999), and, not surprisingly, indicated similar degrees of potential academic benefits from autonomously supportive teachers.

Competence support was also found crucial in promoting the academic engagement of the present sample, which is consistent with the assertion of some research-

ers (e.g., Kao, 2004; Schneider & Lee, 1990) that Asian students tend to respond positively to adult's competence-supportive behavior that has some elements of behavioral control. The results of our study also showed that teacher competence support may operate in a broader range of engagement dimensions for Asian adolescents than for Western students (i.e., those featured in the study of Jang et al., 2010). This is perhaps due in part to the teachers' enhanced drive to provide strong competence support to students owing to the generally high currency placed on academic performance in the examination-driven educational curriculum of Singapore.

When compared with the influence of teacher autonomy and competence support, the effects of teacher–student relatedness on academic engagement were also positive but relatively weaker. The three dimensions of teacher–student relatedness did not have a consistent association with academic engagement: Only teachers' trust in students served as a consistent predictor of all the dimensions of academic engagement. These findings partly affirmed the results reported by Jang et al. (2010) who also highlighted a relatively weaker influence of relatedness compared to autonomy and competence support on the academic engagement of Western students. Our findings are also coherent with the view that the teachers' realm of influence in relation to students' academic functioning would be more on providing support for the development of autonomy and competence and less on providing relatedness support (see Legault et al., 2006).

Going further, our results show that the high-risk students reported lower levels of competence support, perceived trust from teachers, and class engagement compared to their low-risk counterparts. These findings concur with the observations of researchers (Hughes & Kwok, 2007; Skinner & Belmont, 1993) that teacher behavior is reciprocally linked with students' behavior and performance. The present sample of academically at-risk students might have been exposed to cumulative negative experiences due to their placement into the lower academic ability bands: They are often perceived as the "more problematic" students relative to their peers (Tan, 2008). These students tend to suffer from lower levels of competence support and less involvement from their teachers (Chen & Astor, 2011; Skinner & Belmont, 1993). Given that these students could have been exposed to substantial levels of negative experiences with their teachers (and, perhaps, with other significant others), these students are likely to feel that their teachers do not believe in their capabilities. Our results underline the need for more conscious efforts from the teachers in providing competence support (e.g., constructive feedback, clear instructions and expectations, and ability-suited learning tasks and teaching strategies) and raising levels of trust to assist in buffering students' risk of following low-engagement and low-achievement trajectories. Academically at-risk students, especially high-risk ones, may need more explicit assurance from their teachers that they would not be judged negatively when they engage in class activities.

It is worth noting that the high-risk students in the present study indicated higher quality of communication and feelings of alienation with their teachers. It is also puzzling that greater openness in communicating with teachers did not seem to matter considerably in predicting the class engagement of our academically at-risk sample, although the literature suggests that at-risk students may gain more benefits

than their mainstream peers when exposed to positive teacher–student interactions (Hamre & Pianta, 2006, 2012). When teachers interact with students who experience difficulties in coping academically, the students' openness in communicating their ideas to their teachers appears to be an insufficient proxy of a healthy teacher–student relationship. As our results suggest, high-risk students may report high levels of communication with their teachers, but still experience high levels of alienation and perceive low levels of trust from their teachers, both of which are counterproductive to raising academic outcomes of at-risk students. Low perceptions of trust, acceptance, and confidence from their teachers might have diluted the supposed positive effects of high-quality communication, which, in turn, could have predisposed students toward greater feelings of alienation from their teachers. Our findings can be better understood by noting that the effect of communication is always mediated by the effectiveness of the communicator and the context in which the communication takes place (Kraft & Dougherty, 2012). To further shed light on the foregoing issues, future research efforts may focus on identifying the mechanism of how teacher–student communication—including its frequency, context, and nature—influences students' engagement.

Conclusion and Implications

At least in relation to the English subject domain, the results of this study point toward the relevance of SDT and related constructs in predicting variability in students' engagement for academically at-risk Asian students, particularly those attending Singapore schools. When taken as a whole, our findings have implications that speak about the nature of the influence of teacher behavior on explaining students' classroom engagement.

This study underscored the importance of teachers' roles in fostering students' autonomy and competence and establishing trust in promoting adaptive behaviors in class, such as high academic engagement. Students' engagement appears to flourish when teachers provide high autonomy (low coercion) and high competence (high certainty and feedback) support within an atmosphere of trust. Teachers seeking engagement-fostering instructional strategies need to focus on these factors that can buffer the negative effects of academic stressors on academically at-risk students. As trust issues may be the most difficult to establish among the three factors mentioned, teachers are reminded to be mindful of any latent bias they might unwittingly hold toward students at high risk of academic failure. Specifically, when interacting with students who are struggling academically, teachers need to be more cognizant of the extent to which they project trust or distrust in their students' behavioral and academic abilities.

When appropriate actions are carried out to improve the quality of teachers' supportive roles in the academic life of students, a chain of positive effects may be expected. This conjecture is based on research reports suggesting the reciprocal link between teacher behavior and engagement (Hughes & Kwok, 2007; Skinner &

Belmont, 1993), that is, better engaged students tend to elicit greater involvement and support from their teachers and vice versa. Nevertheless, the importance of constantly finding ways at improving the capability of teachers to provide support for the students, especially those facing academic risk, should not be overstated. The insightful work by Reeve and colleagues (2004) is instructive on how to translate knowledge about these supportive approaches into practice. It could be potentially beneficial for students, especially for low-achieving students, if schools could implement intervention programs aimed at improving teachers' capacity—both in terms of whats and hows—to afford the varied forms of support to their students.

Future studies may extend our investigation toward the examination of the impact of teacher support on at-risk students' academic achievement and other affective outcomes such as school belonging, school resilience, and self-concept. As the use of students' self-reports is considered as the main limitation of this study, we encourage future research efforts to utilize other data sources. Studies of this kind would provide a more comprehensive perpective in looking at the crucial role of teachers in cultivating adaptive outcomes to help at-risk students deviate from the trajectory of continued low achievement.

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Chapter 33
From Classroom Environment to Conception of Mathematics

Ngai-Ying Wong, Rui Ding, and Qiao Ping Zhang

Abstract The psychosocial classroom environment is an influential factor in the enhancement of learning. This has been a subject of interest to many researchers since the 1980s. It is well established that students learn better in an environment congruent to their preferences. In recent years, beliefs, which include beliefs about the discipline, about how one can learn better and about oneself is yet another research focus. We can conceptualise all these into a neat formulation which involves the notion of the *lived space*. Teachers, basing upon their knowledge and *beliefs*, together with the curriculum and school settings, shape the space students *live* in, which consequentially generates students' *outcome* space. Such an outcome space comprises students' cognitive and affective learning outcomes, as well as their *beliefs*. In the past two decades, the authors have conducted a number of studies concerning teachers' and students' preferred and perceived classroom environments, teachers' beliefs and students' lived space in relation to the conception of mathematics. This chapter will summarise what has been done so far, as well as discuss possible ideas for future development.

Keywords Classroom environment • Conception • Beliefs • Learning • Lived space

Introduction

The betterment of learning and teaching has always been a top educational agenda worldwide. Typically, factors such as curriculum and instructional design are cited as influencing learning and teaching. However, there is an increasing trend towards recognising more subtle yet influential factors. Besides cognitive factors such as prior knowledge, other factors include approaches to learning, affect, motivation,

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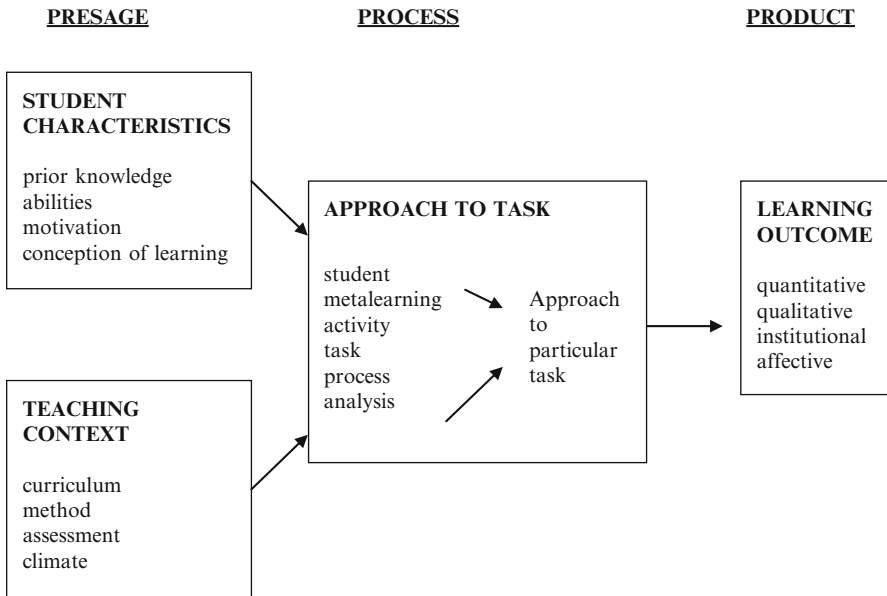
Fig. 33.1 The 3P model

attitude and self-concept. A number of learning models were conceptualised by various scholars. In particular, the 3P[1] model (Biggs, 1991) tidied all the processes of learning into a comprehensive model which is still widely used today (Fig. 33.1). This is precisely the point in which our mentor, Professor David Watkins, launched his academic journey.

In his own Ph.D. thesis, our mentor, Professor David Watkins extended Biggs' 3P model to include five groups of variables: personal background characteristics, personalities, educational environment, study process and outcomes of education. In his thesis, David[2] also introduced a series of empirical studies to refine his own model (Watkins, 1983).

We agree with David that various factors can be included into the 3P model under different contexts of discussion. The relationships of these factors (which include age, gender, self-concept and motivation) with learning have been the foci of 'David's school'.[3] In particular, the first author researched the classroom environment extensively for his Ph.D. thesis. His research focused on the classroom envi-

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[1] The 3P's represent *p*resage, *p*rocess and *p*roduct.

[2] After the first author passed his oral defence, Prof. Watkins took him to coffee to celebrate, where he said, "From now on, you can call me 'David'". In his honour, we use 'David' in this chapter except for citation of references.

[3] It refers to his postgraduate students who continued and extended his research foci.

ronment in relation to conception (or beliefs).[4] We will describe the research that has been conducted (by ourselves and others) in these two areas and how these areas are interconnected. The socio-cultural context of the series of studies will be given in the section below. In what follows, we will first summarise our works done on the classroom environment, and how such works naturally initiated our second body of studies on the conception of mathematics.

Classroom Environment

Since the late 1960s, educational researchers have shown growing interest in the psychosocial learning environment of the classroom. Both the perceived and preferred environments were foci of investigation. The former refers to the classroom environment one (whether student or teacher) perceives (usually measured by a questionnaire – for instance, whether the classroom is enjoyable, collaborative, teacher led, etc.) while the latter refers to the environment one prefers. Quite a number of validated instruments were developed, with which relationships of these environments with academic achievement, students' approaches to learning and other learning outcomes were studied. With these instruments, it was found that, students generally prefer a more favourable environment than they perceive, and perceive a less favourable environment than the teacher's perception. Yet, preferred-perceived congruence makes an effect in learning, including the above-mentioned learning outcomes (for details, see Fraser, 1994).

Despite the great amount of effort devoted to the investigation of the classroom environment in Western countries, the learning environment of the Chinese community has not been fully investigated, and cultural differences may present a dissimilar outcome. In particular, since we are talking about preferred-perceived congruence, the preferred classroom environment among the Chinese may be difference from the preference among Western students. This is indicated by the unsatisfactory reliabilities of various Western instruments when used among the Chinese (see, e.g. Chan, 1993). This indicates that not only the scales for measurement require redevelopment, but the possibility of a difference in the conception of learning environment between Western and Chinese regions may emerge. Through qualitative methods, the first author developed the Mathematical Classroom Environment Scale, which addresses the typical 'Chinese' teacher-led yet student-centred classroom environment. The scale comprises the dimensions of *enjoyable*, *order*, *involvement*, *achievement orientation*, *teacher led*, *teacher involvement*, *teacher support* and *collaborativenes*, yielding satisfactory reliability indices (Wong, 1993). With it, a number of studies have been conducted.

First, in line with the results of previous studies, students perceive the classroom environment to be not as favourable as they preferred. This occurred in all dimensions. Gender differences were also found. Girls preferred a more harmonious class-

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[4] In this chapter, we treat these two terms as interchangeable.

room with more teacher-involvement, whereas boys tended to perceive a more enjoyable classroom environment. The preferred-perceived discrepancies were greater among the girls than among the boys in several dimensions. Teacher-student differences were delineated by the use of profile analysis (Tabachnick & Fibell, 2007). It was found that teachers perceived a more positive environment than their students in the same classroom. Teachers' preferred-perceived discrepancy was narrower than the students'. In other words, it is possible that students' expectation gap might not be easily noticed by teachers since the teachers were relatively satisfied with the classroom environment (Wong, 1995a).

Furthermore, surface regression analyses revealed that cognitive learning outcome was predicted by the perceived classroom environment together with the preferred-perceived interaction (i.e. $Y = a + b_1 A + b_2 A \times P$, where A is the perceived environment whereas P the preferred environment) (Wong & Watkins, 1996). One particularly interesting result involved the incorporation of the notion of self-monitoring. High self-monitors are those who are more sensitive to the environment and use its clues to adjust their own behaviour (Snyder, 1987). When we separated the student pool into high and low self-monitors, the influence of preferred-perceived interaction among the high self-monitors was more prominent. Finally, as the whole study was put under a longitudinal design with data collected in three time slots (during a 1 year period), structural equation modelling was then conducted. Results revealed that preferred and perceived classroom environments acted as a significant mediating factor between cognitive/affective entry behaviours and cognitive/affective learning outcomes (for details, see Wong, 1995b and Wong & Watkins, 1998).

The Chinese Context Over the past two decades, the outstanding performance of Far Eastern Asian students (particularly in mathematics) has attracted the attention of sociologists, educationalists and psychologists (refer to Wong, 2013, for the whole trend of attention). Indeed, this was the focus of David's two books on the Chinese learner (Watkins & Biggs, 1996, 2001). Inspired by David's research, the first author has published several papers on the topic, focusing on the subject of Mathematics (a representative one is Wong, 2008a). Wong, Wong and Wong (2012) also clarified many misconceptions about the Chinese culture, equating Chinese culture with Confucianism in particular. Rather, examination orientation, which a means for social upward movement and has nothing to do with Confucianism per se, plays a dominating role.

In addition, the first author, together with his collaborators, published two books on how the Chinese learn and teach mathematics (Fan, Wong, Cai, & Li, 2004, 2015). Wong (2006) put forth the possibility of a teacher-led yet student-centred classroom environment in the Chinese context, which coincides with the notion given by Ausubel (1968). Besides, Hess and Azuma (1991) also note a mixture of authoritarianism and student-centredness in the Japanese classroom.

Although Wong's (1995b) study was conducted in one of the Chinese communities of Hong Kong, one should note the subtle cultural differences between Hong Kong and the Chinese mainland. Hong Kong, having been a British colony for a century, has strong Western influences. Furthermore, the classroom environment in

the Chinese mainland may also have changed when constructivism was advocated in the curriculum reform at the turn of the millennium (Lam, Wong, Ding, Li, & Ma, 2014). The investigation of the mathematics classroom environment in the Chinese mainland constitutes the Ph.D. thesis of the second author under the supervision of the first.

The Mathematics Classroom Environment in the Chinese Mainland The status quo of the mathematics classroom in the Chinese mainland was delineated through qualitative methods. Results revealed that, since the mathematics curriculum reform taken place in the turn of the millennium (Lam et al., 2014), there have been many changes in primary school mathematics classrooms. The most obvious one was the increase in group discussions. Although traditional methods of teaching and lecturing were predominant, teachers were found to include various activities such as games, short stories and outdoor surveys as well as real-life situations in their mathematics teaching. In brief, the primary mathematics classroom environment in the Chinese mainland is a mix of constructivist and traditional teaching. Teacher lecturing and student discussions co-exist in the classroom.

With such a thick qualitative data, the second author proceeded to the development and validation of an instrument for use in the Chinese context. By replicating the procedures done in Wong (1995b), the Primary Mathematical Classroom Environment Scale (PMCES) was gradually developed (Ding & Wong, 2012). Like most classroom environment scales, PMCES has both the preferred and perceived versions. It was administered among a large sample of primary students in Changchun, China. Confirmatory factor analysis was used to analyse the structure of the scale, yielding satisfactory goodness-of-fit indices.

The questionnaire was administered together with the revised Learning Process Questionnaire (LPQ) (Kember, Biggs, & Leung, 2004), the Conception of Mathematics Scale (Wong, Lam, & Wong, 1998) and the Aiken's Mathematical Learning Attitude Scale (Aiken, 1979). Students' regular mathematics test scores and their scores against three open mathematics problems were also collected (Ding, 2010; Ding & Wong, 2012).

Different Types of Classroom Environments The dimensions of PMCES which are relevant to constructivism (*knowledge relevance to students*, *students' negotiation in learning mathematics* and *students' voice to be allowed and acknowledged*) were chosen to distinguish three types of classroom environments. Using cluster analysis, the constructivist, the intermediate and the traditional classrooms were identified. Classroom was the unit of analysis in the classification. Relationships between these types of classroom environment and other factors were analysed. Within each type of classrooms, the student became the unit of analysis.

Results revealed that constructivism made a difference to the learning environment. Students in constructivist classrooms possessed deeper motives and employed deeper strategies in learning. They had more positive learning attitudes, valued mathematics more and were less anxious about mathematics. These students held a broader conception of mathematics. The mathematics scores of the constructivist

group were significantly higher than those in the traditional group, which in turn was higher than the intermediate group.

It is interesting to note that students in the intermediate classroom had the poorest performance. Compared to those in the traditional classroom, teachers in the intermediate classes were more open to change as they adopted small-group discussions and hands-on experiences. However, they also maintained traditional teaching methods in part and perhaps lost 'the best of both worlds'. Their classes were not as active as the constructivist classes and, at the same time, traditional problem-solving practices were not in place (Ding, Wong, & Ma, 2009).

Relationship Between Classroom Environment and Learning Performance In order to tap the relationships among classroom environment, students' learning approach and students' learning performance, structural equation modelling was conducted with the above set of data based on an a priori model which is adopted from the 3P model. Satisfactory goodness-of-fit indices were obtained. The final model is shown in Fig. 33.2. Results revealed that some aspects of the classroom environment affect approaches to learning, which in turn affect attitude towards and conceptions of mathematics (see Ding & Wong, 2012 for more details).
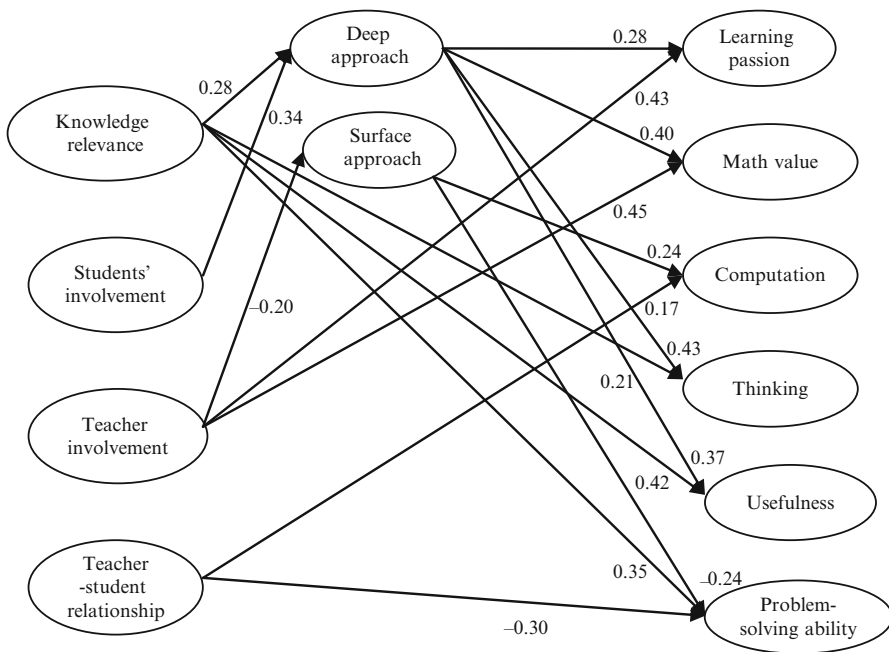
Fig. 33.2 Final model of the relationships among the perceived classroom environment, approaches to learning and attitude towards and conception of mathematics (*Leaning passion* is a combined dimension of *enjoyment*, *motivation* and *fearlessness* due to factor analysis results) [Translated from Ding, 2010, p. 126. Thanks are due to Northeast Normal University Press for approval in reproducing this]

The second author further explored the causal relationship between classroom environment and students' learning performance. Following the steps given in Fraser and Fisher (1986) to improve the classroom environment, a quasi-experiment was conducted. The steps are assessment – feedback – reflection and discussion – intervention – reassessment. Results showed that strategies to enhance the knowledge relevance to students, students' voice and teachers' supporting led to the improvement of some aspects of students' learning outcome. This included approaches to learning, problem solving ability, conceptions of mathematics and attitude towards mathematics. Students' conventional test scores did not improve however. This might be due to the possibility that conventional tests only tapped a narrow scope of learning outcomes.

Discussion The above studies not only confirm previous studies that the classroom environment plays a crucial role in the learning process, but the research tradition is successfully grounded into the Chinese community. Instruments that particularly fit the Chinese context were developed and features of the Chinese mathematics classroom were identified.

When David and his collaborators, like Biggs, first came into contact with Chinese/Asian students, they experienced a 'cultural shock'. Gradually, they cleared up common Western misconceptions about the Chinese (for more details, please refer to Wong, 2013). Quite naturally, when one culture meets another, some might see the strengths of the other and some might see the shortcomings. This happens at both the macro level (China – America interactions, Ding & Xin, 2013) and the micro level (Chinese mainland – Hong Kong interactions, Wong, 2008b). However, the Chinese idiom quite appropriately states, "Those stones from other hills can be used to polish the jade".[5] This suggests that by reflecting on the practices of another culture, one reflects on one's own, understands oneself more and forms a basis of moving forward in one's own way. By doing so, it is possible not just to get the stones from the other hill, but to use these stones to polish one's own jade (Wong, 2009).

With the intention of improving learning and teaching, our results and data can be used to help create an environment more conducive to learning. This concerns the shaping of the *lived space*, the notion of which will be elaborated in due course, in the section '*Teachers' conception of mathematics and the lived space*' below.

Conception of Mathematics

How Students' Conception of Mathematics Influences Their Problem Solving Investigating the classroom environment for the betterment of learning, a natural question to ask would be what our expected learning outcome is. In mathematics, besides achieving the cognitive (including conventional test scores) and affective aspects, learning for understanding is advocated (Hiebert & Carpenter,

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[5] Taken from 'Call of the Cranes, Minor Odes of Kingdom' in the *Book of Ancient Poetry*.

1992). What, then, is understanding mathematics? Or, perhaps more directly, 'What is mathematics?' in the eyes of the students. Such an inquiry has been incorporated in the first author's Ph.D. study (Wong & Watkins, 2001).

After graduation, the first author picked up the conception of mathematics as his research agenda on which he worked for more than 10 years. Yet conceptions and beliefs are too deep in one's mind to be explored by means of conventional interviews. Following the practice of Kouba and McDonald (1991), a set of hypothetical situations were developed and used. One example is "An older sister lifted her younger brother. She said that he must weigh about 30 lb less than she. Did she do mathematics?" Through in-depth interviews, it was found that students' conception of mathematics was rather confined. In brief, they would identify something as mathematics or not with terminologies, see mathematics as a subject of *calculables* and as an exercise of applying routines (formulas in particular). However, they do see that mathematics is useful and involves thinking. Consequently, the Conception of Mathematics Scale mentioned above was developed. It has been used in a number of studies and yielded satisfactory reliability indices.

To investigate the relationship between conceptions of mathematics and problem solving performance, a total of 36 classes from Grades 3, 6, 7 and 9 were asked to tackle a set of mathematics problems. Each set comprised 2 computational problems, 2–4 words problems and 4 open problems. Two students from each class were then asked how they would approach these problems. Students repeatedly expressed the conception that mathematics is a set of absolute truths where there is always a set pattern to solving problems in mathematics. The task of mathematics problem solving is thus the search of such patterns. In order to search for these rules, students look for clues embedded in the questions including the given information, what is being asked, the context (which topic does it lie in) and the format of the question (Wong, 2002).

This coincides with what Biggs (1991) and Marton (Marton & Säljö, 1976) put forth: a narrow conception is associated with surface approaches of learning which most likely yield low levels of understanding.

Teachers' Conception of Mathematics and the Lived Space Moving beyond students' conceptions, we also investigated teachers' conceptions of mathematics. What was surprising was the close resemblance between students' and teachers' conceptions of mathematics, although the latter's conceptions were, in some cases, more refined (Wong, 2002). Following this, we were led to conceptualise these results into the notion of the *lived space*, which arose from phenomenography (Marton, 1994). First, how a phenomenon (no matter what it is, learning phenomenon included) is perceived by either an individual or by a group generates a *space* of understanding or conception of that particular phenomenon. In terms of learning, that *space* would constitute an *outcome space* regarding that phenomenon (Marton & Booth, 1997). The antecedent of this *outcome space* is students' *lived space* which is the result of their learning experiences. The teacher shapes the space students 'live' in, which consequently results in students' cognitive and affective learning outcomes. In brief, students' *outcome space* can be seen as a result of the *space* (learning environment) they *live* in and it is the teacher who shapes the *lived space*, and teachers' beliefs are inevitably one of the major driving forces behind this pro-
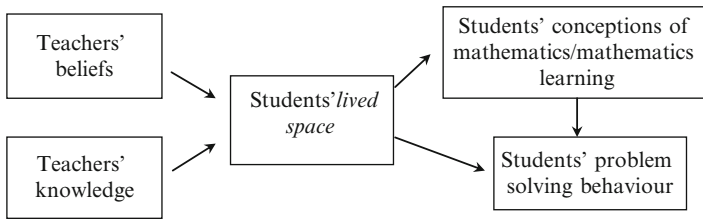
Fig. 33.3 The *lived space* of mathematics learning

cess (Wong, Marton, Wong, & Lam, 2002) (Fig. 33.3). The psychosocial classroom environment can be regarded as one component of the *lived space*. In particular, teachers' narrow conception would impose a narrow conception among the students, and should some of these students choose to become teachers one day, this may turn into a vicious circle.

By reinterpreting earlier findings using the theoretical lens offered by phenomenography, we can conclude that a broader *lived space* leads to a richer *outcome space* of student learning (Marton & Booth, 1997). Thus, repetition with variations could be the key to bring about learning and understanding (Wong et al., 2002). A typical example concerns the notion of isosceles triangles. Isosceles triangular plates with varying sizes, orientations, colours and materials are presented to the students systematically to help them conceptualise which are the concepts and 'non-concepts' of the notion. And so with a systematic introduction of variation into the *lived space*, it is possible that students' conceptions of mathematics are broadened, resulting in higher competence in solving mathematics problems, in particular, the non-routine problems. This conceptualization gave rise to two research foci. The first concerns the improvement of problem-solving performance via the introduction of open problems[6] in day-to-day teaching (this was followed by a series of studies involving *bianshi*[7] teaching), yielding fruitful results (Wong, Chiu, Wong, & Lam, 2005; Wong, Lam, Sun, & Chan, 2009). The second research focus concerned how teachers' beliefs actually affect the teacher behaviour (thus the *lived space*).

Teachers' Beliefs and Teaching One of the first author's M.Phil. students conducted a comprehensive study that involved Chinese mathematics teachers in Hong Kong. Questionnaires, interviews and classroom observations were involved. In addition to the above-mentioned hypothetical situations, other hypothetical situations which involved the teaching context were used. An example is:

Consider the following question: "Siu Fong spent $75 on dolls and snacks. Each doll sells for $59. How much did Siu Fong spend on snacks?" Which of the following expressions are acceptable to you? (a) $x = 75 - 59$; (b) $75 - x = 59$; (c) $59 + x = 75$; (d) $75 - 59 = x$.

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[6] Open problems are not confined to 'open-ended problems'. They can be open in the 'given', in the 'process' or in the 'solution'. Multiple solution problems are one type of open problems.

[7] A Chinese term which means teaching style with variations.

While Wong, Wong, Lam and Zhang (2009) provide details of both the study and of these hypothetical situations, three types of mathematics teachers were further identified, namely the pragmatic, the understanding and the thinking-development oriented. Different types of teachers exhibit different views on effective mathematics teaching, and consequently on how they approach a lesson. For the pragmatic type, these teachers possess, to a certain extent, an absolutistic view of mathematics. Conformity is emphasised and thus learning mathematics is essentially 'copying' what the teacher does and (re-)producing what is 'correct' mathematically. For the understanding type, mathematics is seen as a way of thought. Thus, their view of effective mathematics teaching is that understanding, instead of merely achieving the correct answer, is the main learning outcome, and every means should be employed to enhance students' understanding of the subject. There may be commonalities between the second and third types. However, for the third type – the thinking-development oriented – knowledge structure of mathematics and mathematical rigour are repeatedly stressed. Their picture of the ultimate outcome of mathematics teaching is the acquisition of a 'mathematical way of thought' and the construction of an 'objective' mathematical knowledge structure in the students' mind.

The third author, a Ph.D. student of the first author, took a step further in his research by considering teachers' professional knowledge, including subject content knowledge (SK) as well as pedagogical content knowledge (PCK).[8] Previous studies revealed the mathematics teachers' strong subject matter knowledge and skills in presenting their knowledge to students, and their professional beliefs lead to effective mathematics teaching (Zhang & Wong, 2015). However, not many of these studies addressed how teachers' knowledge and their beliefs interactively affect teaching. As far as we are aware, no such studies have been carried out in the Chinese context. The third author further included teachers' approaches to teaching in his research model (see Fig. 33.3).

In the first phase of his research, the Beliefs about Mathematics Scale, which was adopted from Tatto et al. (2008) and Lam, Wong, and Wong (1999), was administered among 92 secondary school mathematics teachers in Wuhan, China. Three categories – the instrumentalist, the Platonist and the problem-solver – consistent with Ernest's (1991) classification were identified. This categorisation reflects orientations rather than hierarchical. With the help of the Mathematical Knowledge Questionnaire (assessing both teachers' SK and PCK), six teachers with different levels of mathematical knowledge were invited for further classroom observations as well as in-depth semi-structured interviews in the second phase. During the inter-

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[8] SK refers to "the amount and organization of knowledge per se in the mind of the teacher" and PCK "went beyond knowledge of subject matter per se to the dimension of SMK for teaching…[it was] the most useful forms of content representation, the most powerful analogies, illustrations, examples, and demonstrations- in a word, the ways of representing and formulating the subject that makes it comprehensible for others" (Shulman, 1986, p. 9).

views, hypothetical situations that concerned teaching in general as well as the teaching of functions were used.

Results revealed that both teachers' beliefs and knowledge did impact their teaching. Those holding instrumental beliefs tended to design their teaching to help students memorise, understand the contents and avoid making mistakes. For those with limited professional knowledge, the textbook is their main source to design and organise their teaching. Consequently, they emphasised the clear definitions of concepts and the core elements of the concepts. Due to their weak PCK, these teachers lacked variations in their teaching. Comparatively, teachers with stronger professional knowledge used textbooks flexibly according to students' situations. Their teaching design focused on the operations or procedure knowledge without special emphasis on the understanding of the concept. When coupled with a rich PCK, these teachers used a lot of metaphors and analogies in teaching.

Similar to the 'instrumental teacher', teachers holding Platonic beliefs also focused on mathematical content. However, their goal was to promote students' understanding of these contents which encompasses facts, rules, procedures and principles. They believed that student understanding is an ever-deepening process. For those with strong professional knowledge, they organised their teaching in a spiral approach. As for those teachers with limited professional knowledge, they see the knowledge structure of mathematics as something of importance. Each lesson should be self-contained and standardised. They would provide the students with an abundance of exercises to consolidate students' understanding of the concept.

As for the problem-solving oriented teachers, they emphasised students' exploration in the classroom. Their teaching design was more student-oriented. Specifically, teachers with rich professional knowledge used real-life examples in their teaching. Students were encouraged to engage in classroom activities and present their thinking process. These teachers emphasised the use of counter-examples to deepen students' understanding. As for the teachers with limited professional knowledge, they tended to introduce new knowledge from students' prior problem-solving experiences or from real-life examples. They also asked their students to explore the pattern behind a concept instead of merely having the teacher explaining. However, due to limited professional knowledge, they did not provide students with adequate real-life examples. They also lacked classroom management skills which is necessary in such enquiry lessons. As a result, they eventually resorted to expository teaching instead of allowing students to explore by themselves.

While Zhang (2010) and Zhang and Wong (2015) provide further details, it is clear from these results that both teachers' beliefs and knowledge impact how teachers approach a lesson.

Discussion From the series of studies on conceptions of mathematics (Wong, 2002), it was found that both teachers and students hold a relatively narrow belief about mathematics. For the students, it affects their problem solving performance. Such a confined *outcome space* might be the result of the *lived space* shaped by the

teachers. To shape a classroom environment which is conducive to student learning, both teachers' knowledge and beliefs are indispensable. Although it has been found that Chinese mathematics teachers generally possessed a strong SK (Ma, 1999), their confined beliefs (about mathematics, mathematics learning and teaching), would naturally hinder their teaching. In addition, it is likely that teachers would impose such beliefs on their students. The similarities in beliefs among students and teachers found in previous studies precisely reflect such possibilities. We do realize that the teacher is not the only source of students' beliefs as both are affected by the 'collective Anshuaang (collective worldview)' of the public. However, the teacher is an important contributor to such a 'collective Anshuaang' since it is assumed that every citizen (the 'public') basically goes through schooling before entering the workforce in society. To reverse the vicious circle, we need a new breed of teachers, which we call, for the lack of a better name, the 'scholar teacher' (Siu, Siu, & Wong, 1993).

Directions for Future Research

Classroom environment and conception of mathematics seem to be two distinct areas of study. However, from our discussions above, we can see that they are in fact linked together via the notion of *lived space*. As it has already been established that teachers' beliefs and knowledge have an impact on their teaching, we can proceed to ask how the impact takes effect. Furthermore, there has been criticism that research on teaching approaches had often relied on participants' stated response. Indeed, it is suggested that one should investigate beyond how teachers approach a lesson (planning stage) to how teachers actually deliver their lesson. Classroom observation should be the most direct and valid way to tap into what a teacher does in practice. How beliefs, SK and PCK interplay and how other mediating factors like self-will, gender and teaching experience enter into the scene are all worth exploring. To answer the 'how question' above, conventional large-scale quantitative studies can be conducted and sophisticated statistical methods like structural equation modelling, or, alternatively, in-depth ethnographic investigations might reveal how such influences take place and how deficiency of knowledge and confined beliefs would restrict their teaching.

Besides beliefs, value is another focus for research. 'Values' are defined as the '*regional* properties of objects or events that "*require*" a *positive response* on the part of anyone who considers the object or the event with *discernment*"' (the bold italics are the authors', Curtler, 1997, p. 79). The first and third authors have been involved in such studies in recent years (Seah & Wong, 2012; Seah, Zhang, Barkatsas, Law, & Leu, 2014). There might be particular interests in investigating

beliefs and value in the Chinese context as there is a common belief that the Chinese have high regards on education, value effort and achievement oriented (for detailed discussions, please refer to Wong et al., 2012).

Apparently, value is an issue of the same depth (if not more) as beliefs, and a methodology suitably sensitive is needed. The use of hypothetical situations (which includes those on what is mathematics, on mathematics teaching and how one approaches teaching) has proven to be promising and possessed high potential. The hypothetical situations should undoubtedly contribute to the investigation of values in mathematics.

During a discussion on teacher education at the 12th International Congress on Mathematics Education (8–15 July, 2012 at Seoul, South Korea), it was concluded that among all the knowledge teachers possess, teachers' PCK is student dependent. PCK includes knowledge of learners and their characteristics (Shulman, 1986). This knowledge is concerned with their strategies, prior conceptions, misconceptions that students bring with them to the learning of specific topics and lessons. In other words, for a single SK, we may need several PCKs to address different target student groups. That makes the training of PCK particularly difficult. The model of Berliner (1986) opens up a new perspective. The idea is described in Cai and Wong (2012), where they state, "Briefly speaking, beginner teachers can have only one script at hand, and as they further develop, they can have several scripts, but they can only shift from one script to another by trial and error. In other words, they only turn to another one when the first script does not work. With more experience, they develop a meta-cognition of these scripts and know which of them is likely to be effective in a certain context. So the effective teacher is not one who possess the most omnipotent teaching method and the perfect script but one who get holds of a great number of alternatives and executes them flexibly and responsively" (p. 312). The above can be viewed as both descriptive and prescriptive and opens up a new horizon for academic research.[9]

Reflections of the Authors

First of all, we would like to pay tribute to David, who inspired us so much in our academic pursuit. Besides offering our reflections here, we would like to wish him good health and a very pleasurable retirement life.

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[9] Such components are incorporated with the General Research Fund project of the Hong Kong Research Grant Council "Knowledge competency among Hong Kong pre-service mathematics teachers: Their readiness, strength, and weakness during the reform of New Senior Secondary school curriculum" in which the first author is a team member and Prof Issic Leung and principal investigator.

'The gang of four': Alan, David, Chris and the first author at the University's senior staff common room

Ngai-Ying Wong When David started to work in Hong Kong, he admitted three Ph.D. students, Chris (Cheng), Alan (Tam) and myself. I am proud to be one of his first Ph.D. graduates. After graduation, we talked and dined regularly and David called us 'the gang of four'. It is a pity that Alan passed away at an early age. Besides the classroom environment, the topic of my thesis of my study, David initiated me into two more areas of scholarly investigations: understanding of understanding and the Chinese learner's phenomenon, both of which have been extremely fertile and fruitful. In this chapter, I involved two other authors: my former Ph.D. students Ding and Zhang, who worked on the classroom environment and conception of mathematics respectively. Perhaps this will be a heritage that passes on from one generation to the next.

Rui Ding Although I have never met Professor Watkins, his wisdom and interests about mathematics education affect me very much, not only through Dr Wong (the first author), but also through his books *The Chinese Learners* and *Teaching the Chinese Learners*. From studies on the classroom environment, I began to explore the factors that affect students' learning performance. Now, with the help of Dr Wong, I am investigating the differences between Eastern and Western mathematics classroom environments, trying to understand the relationships between the classroom environment and students' performances in different cultures.

Qiao Ping Zhang When I began my Ph.D. studies under the supervision of the first author, he asked me to review the literature on the conception of mathematics. Very soon I realised that this is an exciting area of research. At the same time, I came across the two famous books on the Chinese learner (Watkins & Biggs, 1996, 2001) as well as the book *How Chinese Learn Mathematics*, and I decided to focus my study on the Chinese context. Based on previous findings on beliefs about mathematics and mathematics teaching, I incorporated teachers' knowledge into the

research framework. Hence, my Ph.D. study focussed on the tripartite relationship of beliefs, knowledge and the Chinese. I hope that my work can better inform us on how mathematics teaching takes place in the Chinese community, contributing to the betterment of learning and teaching.

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Chapter 34
Promoting Students' Creative Self-Efficacy: A Field Experimental Study in Singapore Secondary Classrooms

Cherie Su Ling Ong and Youyan Nie

Abstract This study examined the effects of learning experiences (mastery learning experience vs. vicarious experience/peer modelling) on students' creative self-efficacy in fluency, flexibility and originality by building on Bandura's self-efficacy theory. A 2 (mastery experience vs. vicarious experience) × 2 (pre-creative self-efficacy vs. post creative self-efficacy) experimental design was used. Mastery and vicarious experiences were manipulated as the between-subject independent variable while creative self-efficacy was measured as the dependent variable. Fifty-eight secondary three history students from an independent all-girls school in Singapore participated in the study. The results showed that mastery experience did not enhance students' creative self-efficacy on fluency, flexibility and originality, while vicarious experience increased students' creative self-efficacy on fluency and flexibility, but not originality. Vicarious experience was more effective in promoting students' creative self-efficacy on fluency and flexibility than mastery experience. The results were discussed from an Asian students' motivation and creativity education perspectives.

Introduction

The importance of creativity in education has been well acknowledged in recent years, especially in Asian countries (e.g. Curriculum Development Council, Hong Kong, 2001; Ministry of Education, Singapore, 1997). In response to the call for promoting creativity in learning, many schools and teachers have increasingly valued creativity and emphasized it within educational curriculum (Cheung & Mok, 2013). In practice, however, promoting creativity in classroom teaching and

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learning is a challenge. Research has shown that building students' motivational belief system, i.e. creative self-efficacy, is significantly related to creative performance (Tierney & Farmer, 2002). Accordingly, guided by Bandura (1997)'s self-efficacy theory, the current study examined whether mastery experience and vicarious experience through assessment tasks can help to increase students' creative self-efficacy in an authentic classroom learning context. The importance of mastery experience and vicarious experience is in tandem with Singapore's shift towards student-centred learning. Successful experience and modelling becomes especially useful in group work and class presentations which are being encouraged to promote student-centred learning. Therefore, this classroom field experimental study is particularly important in providing the theoretical and practical link between learning experiences and creative self-efficacy in an Asian education context.

Creative Self-Efficacy

According to Bandura (1997), self-efficacy refers to "beliefs in one's capabilities to organize, and execute the courses of action required to produce given attainments" (p. 3). Self-efficacy plays a major role in people's motivation, affect and behaviour. Bandura also pointed out that the school functions as the primary setting for the cultivation of self-efficacy. Many school factors, such as instruction, peer modelling, social comparison and teachers' feedback, affect students' self-efficacy.

In addition, Bandura (2001) stated that self-efficacy is not context free, but is domain-related and different across diverse skills and spheres of a person's life. Therefore, measures of self-efficacy need to be tailored to the specific domains. Accordingly, a great deal of research on self-efficacy is domain specific, such as the mathematics, English language, health domain. Research has also expanded into the creativity domain. In 2002, Tierney and Farmer expounded on Bandura's self-efficacy theory and introduced the concept of creative self-efficacy. Their research found that creative self-efficacy predicted creative performance. This positive relationship is also echoed in their other longitudinal study (Tierney & Farmer, 2011).

Creative self-efficacy is defined as a capacity judgement made in an area of creative functioning, i.e. the beliefs in one's ability to produce creative outcomes (Bandura, 1997; Jaussi, Randel, & Dionne, 2007; Karwowski, 2011; Tierney & Farmer, 2002). The significance of creative self-efficacy is indisputable. First, Bandura (1997) asserted that creative self-efficacy is a precursor for creativity. Empirical evidence showed that creative self-efficacy helped to foster creative behaviour and enhance creative performance (Chen, Yeh, &Yeh, 2012; Choi, 2004) because it served as a key motivational force towards creativity, where its pursuit for novelty is often faced with uncertainties and difficulties (Bandura, 1997; Ford, 1996). Second, creative self-efficacy has been emphasized in education innovation because of its linkage with two important twenty-first century characteristics: creative thinking and confidence (Ministry of Education, Singapore, 1997). Third, the interest in creative self-efficacy is also a result of another shift in the study of

creativity. Creativity research has shifted away from a dichotomous approach, a mere differentiation between the 'Big C' (eminent, genius level) creativity and the 'Little c' (everyday) creativity. Therefore, promoting creative self-efficacy in school learning has become a very important issue in education.

Promoting Creative Self-Efficacy

Despite the well acknowledged importance of creative self-efficacy, studies on how to promote creative self-efficacy are rather limited (e.g. Tan, Li, & Rotgans, 2011). Creative self-efficacy is a dimension of an individual's psychological development that responds to impetus from its environment, and can thus be influenced by the classroom environment or teacher supported behaviours (Beghetto, 2006). Unfortunately, a few studies have examined how creative self-efficacy can be promoted in the classroom (Tan et al., 2011). Even if we have expanded our literature review from creative self-efficacy to self-efficacy in the various academic domains, existing studies were found to be limited. Many studies used qualitative methods to identify relevant sources of self-efficacy and most quantitative studies were correlational (see Usher & Pajares, 2008 for a review). These qualitative and correlational studies are very useful to suggest the potentially importance sources or related factors that may help in enhancing self-efficacy; however, these studies also have some limitations. For example, the internal validity is considerably low to draw any causal relationships. In addition, the ecological validity is low thus providing very limited information on how to implement in classroom practices. Only one experimental study examined if mastery experience and/or vicarious experience can promote the mathematics and science efficacy of college freshman (Luzzo, Hasper, Albert, Bibby, & Martinelli, 1999). Considering the importance to translating theory into classroom practices, the current study conducted a field experiment to examine two kinds of learning experiences, i.e. mastery and vicarious experiences, triggered by assessment tasks and their impact on students' creative self-efficacy.

Albert Bandura (1997) postulated that self-efficacy beliefs are constructed from four principal sources of information, e.g. mastery experience, vicarious experience, social persuasion as well as physiological and affective states. Bandura (1997) states that "information that is relevant for judging personal capabilities – whether conveyed enactively, vicariously, persuasively or physiologically – is not inherently enlightening" (p. 79). The information will be cognitively processed, i.e. selected, interpreted, weighted and integrated in efficacy judgement. He also highlighted that a distinction must be drawn between information conveyed by experienced events and information as cognitively process in to appraisals of self-efficacy.

Enactive Mastery Experience and Creative Self-Efficacy Amongst the four sources, mastery experience is the most influential because it is the interpretation of one's previous attainments (Bandura, 1997; Biran & Wilson, 1981; Feltz, Landers, & Raeder, 1979; Gist, Schwoerer, & Rosen, 1989; Schunks & Rice, 1987). This is supported by correlational studies. For example, Britner and Pajares (2006) found

that the correlation between mastery experience and self-efficacy was $r = .55$, $p < .0001$, higher than the correlation between self-efficacy and vicarious experience which was $r = .34$, $p < .0001$. Similar findings were also reported in many other correlational studies (see Usher & Pajares, 2008 for a review).

The experience that students felt when they successfully completed a task can be treated as mastery experience. In experimental studies, it can be manipulated through giving participants a relatively easy mathematics task, and subsequently giving all the participants a passing score for the task (Luzzo et al., 1999). Accordingly, in the current study, mastery experience was also manipulated through the successful completion of a creative task. The delivery of creative performance was treated as a success and thus the experience in learning to achieve this successful performance was defined as a mastery experience. Research on how to enhance self-efficacy is usually domain specific. Previous experimental studies were conducted in a mathematics domain where the task difficulty level is well-defined and easy to control. There were standard right answers in the mathematics tasks (Luzzo et al., 1999). The current study will be conducted in the creative domain. Due to the nature of novelty and openness in such creative tasks, there are no absolute right or wrong in creativity evaluation unlike standardized mathematics tasks, though creativity is considered as achievable to certain degrees despite being challenging.

Mastery experience serves as an indicator of one's capability. As Bandura (1997) explained, the development of self-efficacy through mastery experience helps to increase cognitive and self-regulation facility which will enhance performance. In general, success increases self-efficacy and failure lowers it (Bandura, 1999). However, Bandura (1997) warned that the significance of mastery experience may be inhibited by factors such as task complexity, effort and the situation in which the task is performed. Creative tasks are usually challenging and difficult due to its novelty, thus requiring more effort and involvement. Can mastery experiences promote self-efficacy in the domain of creativity? This has not been investigated before. Therefore, the current study examine if mastery experience can promote self-efficacy in the creative domain, where being creative is always challenging and difficult.

Vicarious Experience and Creative Self-Efficacy Vicarious experience is another source of self-efficacy (Bandura, 1997). People appraise themselves through comparison with the achievement and performance of others. The power of such modelling influences and social comparisons have been exhibited in numerous studies (e.g. Festinger, 1954; Goethals & Darley, 1977; Litt, 1998; Schunk, & Hanson, 1985, 1989; Suls & Miller, 1977). There are a variety of types of vicarious experiences, such as parents modelling and peer modelling (Schunk & Pajares, 2005). In the current study, vicarious experience was manipulated as peer modelling in the classroom context due to the following reasons. First, studies showed that observing a peer model led to higher self-efficacy for learning than observing the teacher model. This was found through videotape observations in an experimental study on peer modelling by Schunk and Hanson (1985). Second, in educational practices, vicarious experiences often occur between classmates/peers in a classroom learning contexts.

Vicarious experience usually has weaker relations with self-efficacy than mastery experiences (see Usher & Pajares, 2008 for a review). However, the effects of using vicarious experience to promote self-efficacy could be more sensitive or powerful when people are uncertain about their ability or when they have limited experiences with the academic task at hand (Schunk & Pajares, 2005; Usher & Pajares, 2008). Creative academic performances are such examples. Therefore, it is worthwhile testing if the stronger effect of mastery experience on self-efficacy compared to vicarious experience on self-efficacy, which was demonstrated in other academic domain, still holds in the creative domain.

Creativity as a Requirement in Assessment Tasks to Foster Mastery Experience and Vicarious Experience The type of task and the situation in which the task is carried out are important for students' experiences. Several researchers have suggested that assessment tasks, with creativity as a requirement, can serve as a platform for students to promote creative output and to demonstrate their creativity in their performance, thus enhancing their mastery experiences (e.g., Amabile, 1996; Oldham & Cummings, 1996). Chapman and Inman (2009) suggested using rubrics with a specific category for evaluating creativity in order to 'protect' and promote students' creativity. These approaches were adopted in the current study to foster mastery experiences. In general, an assessment task where creativity is a requirement was given to the students in the mastery experience group. This will provide the mastery experience group students an opportunity to experience success through the delivery of creative performance. In addition, observing the creative performance delivered by classmates can be characterized as vicarious experience.

Creative Education and Self-Efficacy in Singapore and Asian Contexts

Although creative education has been emphasized in Asia such as Singapore and Hong Kong, many researchers noted the culture issues related to creativity and creative education. For example, Watkins (2000) mentioned that a common criticism of East Asian classroom is that creativity may be stifled when effectiveness in reproduction of knowledge and academic performance in standard assessments were emphasized. Creativity is considered as a major limitation in Asian's education due to the culture issues. For example the society is collectivistic, hierarchical and face-conscious and even students seek to avoid appearing different from others (See Kim, 2005 for a review). Coincidentally, research on self-efficacy also showed cross-cultural differences, either general self-efficacy or domain specific self-efficacy (see Klassen, 2004 for a review). For example, Schwarzer and Born (1997) found that Japanese and Chinese's general self-efficacy are much lower than some western countries' participants such as Russia and Netherlands. Eaton and Dembo (1997) found that Asian students self-efficacy for specific tasks were much lower

than non-Asian students. In addition, in their study, fear of failure was the strongest predictor of performance for Asian students, but for non-Asian students, self-efficacy was the strongest predictor.

Although the culture to nurture creativity and self-efficacy looks unfavourable to Singapore and Asian students, the important consequences of creativity education, especially in twenty-first century, cannot be overlooked but must be strengthened. Therefore, empirical studies situated in Singapore and Asian contexts would play extremely important roles in guiding teachers on ways to boost creativity and creative self-efficacy in such cultural contexts.

The Significance of the Current Study

The significance of the current study is twofold. First, this study is a pioneering research in the conduct of field experiments to examine the effects of mastery experience and vicarious experience on students' creative self-efficacy. Most of the studies on sources of self-efficacy or creative self-efficacy were qualitative or correlational studies. These types of research are important as they provide useful information on identifying sources of self-efficacy; however, these studies were weak in internal validity for examining the causes of self-efficacy. A field experimental study is an experiment carried out in the participants' natural everyday environment, i.e. classroom learning environment for the current study. It improves the internal validity in comparison to correlational studies. Second, this study holds important applied implications for enhancing student creative self-efficacy, particularly in an Asian learning context where creativity is not always much valued in assessment practices in secondary schools. Although field experiments are subject to less control than laboratory experiments, it provides the direct linkage between classroom practices with students' creative efficacy. Thus the results can be applied to the everyday life environment.

Research Questions and Hypotheses

In summary, the current study posed three research questions:

1. Does mastery experience, through tasks with creativity as a requirement, increases students' creative self-efficacy?
2. Does vicarious experience, through observation of other students' creative work and performances, increases students' creative self-efficacy?
3. Does mastery experience have a more positive impact on students' creative self-efficacy than vicarious experience?

Based on the literature reviewed, we hypothesized that:

1. Mastery experience increases students' creative self-efficacy.
2. Vicarious experience increases students' creative self-efficacy.
3. Students with mastery experience will have higher creative self-efficacy than those who have vicarious experience.

Method

Participants

The participants in this study consisted of 58 Secondary three History students from three classes in an independent all-girls secondary school in Singapore. The age of the students ranged from 14 to 15 years old ($M = 15.1$ years old and SD = .22 years old). The proportion of the students' race were 71.0 % Chinese, 21.0 % Indians, 3.2 % Malays and 3.2 % others. Prior to the experiments, students and their parents were given invitation letters to enlist their assent and consent for the research.

Research Design and Experimental Procedure

A randomized-experimental study was conducted to test the hypotheses concerning the effects of mastery and vicarious experience on creative self-efficacy in a real classroom field context. The participants were randomly assigned into either a mastery or vicarious group in their normal classroom learning/assessment tasks (see attachment). A 2 (mastery experience vs. vicarious experience) × 2 (pre creative self-efficacy vs. post creative self-efficacy) factorial design was used. The independent variables were mastery and vicarious experiences and the dependent variable was creative self-efficacy. The experimental procedure was carried out in the following three steps.

Step 1: Pre-test survey. After being randomly assigned, all the participants sat for a pre-test survey, i.e. Survey 1, to test their creative self-efficacy.

Step 2: Assessment task. After the pre-test survey, the students were given the assessment tasks. Although the same assessment task was given to both the mastery experience group and vicarious experience group, the instructions and scoring rubrics were slightly different for the two groups. The differences in instructions and scoring rubrics were aimed at triggering the mastery experience for the mastery experience group and the vicarious experience for the vicarious experience group. The assessment task, instructions and scoring rubrics for both mastery experience group and vicarious experience group are listed in the

Appendix. The detailed information on the manipulation of independent variable, i.e. mastery experience and vicarious experience, is presented in the manipulation of independent variable section below.

Step 3: Post-test survey. A post-test survey, i.e. Survey 2, to measure their creative self-efficacy was conducted after the presentations, i.e. the completion of the assessment task.

The whole procedure was carried out separately for the three different classes, while the sequence was the same for all three classes. The teacher of the classes collected the data.

Manipulation of Independent Variable

The participants in both groups were tasked to conduct a peer-teaching task, also known as micro-teaching, on the reasons for the War in Europe.

The mastery experience group were instructed to 'teach' the reasons for the War in Europe *in a creative way*. The requirement for creativity in teaching was also reflected in the scoring rubrics. Five marks (one third of the total marks) were to be allocated for the creativity in teaching for mastery experience group.

The vicarious experience group was also tasked to 'teach' the reasons for the War in Europe. However, creativity was not a requirement for their assessment. The instructions did not specify the need for the presentation to be creative. The creativity in presentation was also not a criterion in scoring rubrics. The students in the vicarious experience group observed the creative presentation delivered by their classmates (i.e. the mastery experience group's presentation).

Manipulation Check

The participants in the mastery experience group delivered the presentation in a creative way as observed. The participants in the mastery experience group were asked whether they thought the other group's presentation was creative and they all thought that the other group's presentation was creative, in comparison to their own presentation. In addition, their creativity in presentation was also recognized by the teacher (mean score for creativity component was 4.67 out of 5, assessment rubrics was attached in Appendix) and feedback to the students in this group. Thus these verified that they went through the mastery experience.

The participants in the vicarious experience group were also asked whether they thought the other group's presentation was creative and they all thought that the other group's presentation was creative, in comparison to their own presentation. Thus it verified that they went through the vicarious experience.

Measure of Dependent Variable

Likert-type items ranging from 1 (Not *well at all*) to 7 (*Extremely well*) were used to measure students' creative self-efficacy. The creative self-efficacy scale was adapted from Torrance (1998)) and Abbott (2010). Nine items were used to measure students' creative self-efficacy on their confidence to generate and demonstrate novel and useful ideas on three dimensions, i.e. fluency (e.g. I am able to come up with many possible solutions to a problem), flexibility (e.g. I am able to respond to problems in different and special ways) and originality (e.g. I am able to arrive at a novel solution before other people.). Each of the subscales showed good internal consistency reliability scores, i.e. Cronbach's α. fluency pre survey (3 items; α = .866), fluency post survey (3 items; α = .843); flexibility pre survey (3 items; α = .749), flexibility post survey (3 items; α = .839); and originality pre survey (3 items; α = .920), originality post survey (3 items; α = .911).

Results

Descriptive Statistics

Means and standard deviations of creative self-efficacy for pre-test survey and post-test survey are presented in Table 34.1.

Test of Equivalence of Mastery and Vicarious Experience Groups on Pre-test Scores

Although the sampling is clustered by class, the intraclass correlation coefficients (ICCs) were very low for the creative self-efficacy measures. ICCs < .023, ps > .323. Therefore, the clustering effect was not considered in the following statistical analyses.

Table 34.1 Means and standard deviations of creative self-efficacy

		Pre-test		Post-test	
		M	*SD*	*M*	*SD*
Fluency	Mastery experience	4.21	.95	4.00	.94
	Vicarious experience	3.93	.96	4.53	.73
Flexibility	Mastery experience	4.14	.78	4.08	.90
	Vicarious experience	4.01	.92	4.65	.83
Originality	Mastery experience	3.81	1.03	3.90	.95
	Vicarious experience	3.98	1.40	4.13	1.19

Independent sample *t*-test was conducted for pre-test scores on creative self-efficacy for fluency, flexibility and originality. There were no mean differences on the scores of creative self-efficacy for fluency, flexibility and originality between the mastery experience group and vicarious experience group in pre-test scores, $t(56) = -1.115$, $p = .270$, $\eta^2 = .030$ for fluency, $t(56) = -.585$, $p = .561$, $\eta^2 = .012$ for flexibility, and $t(56) = -.359$, $p = .721$, $\eta^2 = .002$ for originality. The two groups are equivalent in each dimension of creative self-efficacy.

ANOVA

A 2 (mastery experience vs. vicarious experience) × 2 (pre creative self-efficacy vs. post creative self-efficacy) ANOVA with repeated measures on pre- and post-creative self-efficacy was conducted to examine the two main effects and their interaction.

For fluency, the main effect of time was not significant, Wilks's $\Lambda = .941$, $F(1, 56) = 3.512$, $p = .066$, multivariate $\eta^2 = .059$. The main effect of group condition was not significant, $F(1, 56) = .350$, $p = .556$, $\eta^2 = .006$. The interaction was significant, Wilks's $\Lambda = .782$, $F(1, 56) = 15.651$, $p < .001$, multivariate $\eta^2 = .218$. Because interaction was significant, simple effect tests were conducted. Independent sample *t*-test was conducted for pre-test scores on fluency. There were no mean differences on the scores of fluency between the two groups. However, for the post-test score on fluency, the vicarious experience group' score was significantly higher than the mastery experience group's score, $t(56) = 2.418$, $p = .019$, $\eta^2 = .095$. Paired-sample *t*-test was conducted to compare pre-test score and post-test score on fluency for the vicarious experience group and mastery experience group. For the vicarious experience group, post score on fluency was significantly higher than pre-test score, $t(29) = -3.885$, $p = .001$, $\eta^2 = .342$. For mastery experience group, there were no mean differences between pre and post scores, $t(27) = 1.597$, $p = .122$, multivariate $\eta^2 = .086$.

For flexibility, the main effect of time was significant, Wilks's $\Lambda = .886$, $F(1, 56) = 7.177$, $p = .010$, multivariate $\eta^2 = .114$. The main effect of group condition was not significant, $F(1, 56) = 1.234$, $p = .231$, $\eta^2 = .022$. The interaction was significant, Wilks's $\Lambda = .843$, $F(1, 56) = 10.395$, $p = .002$, multivariate $\eta^2 = .157$. Because interaction was significant, simple effect tests were conducted. Independent sample *t*-test was conducted for pre-test scores on flexibility and there were no mean differences on the scores of flexibility between the mastery condition and vicarious experience group. However, for post-test score on flexibility, the vicarious experience group's score was significantly higher than the mastery experience group's score, $t(56) = 2.514$, $p = .015$, $\eta^2 = .101$. Pair-sample *t*-test was conducted to compare pre-test score and post-test score on flexibility for the vicarious experience group and mastery experience group. For the vicarious experience group, post-test score on flexibility was significantly higher than the pre-test score, $t(29) = -4.568$, $p = .001$,

$\eta^2 = .418$. For the mastery experience group, there were no mean differences between pre and post scores on flexibility, $t(27) = .354$, $p = .726$, $\eta^2 = .005$.

For originality, the main effect of time was not significant, Wilks's $\Lambda = .983$, $F(1, 56) = .954$, $p = .333$, multivariate $\eta^2 = .017$. The main effect of group condition was not significant, $F(1, 56) = .516$, $p = .475$, $\eta^2 = .009$. The interaction was not significant, Wilks's $\Lambda = .999$, $F(1, 56) = .055$, $p = .815$, multivariate $\eta^2 = .001$.

In general, the results showed that mastery experience through the assessment task where creativity was a requirement did not increase students' creative self-efficacy on fluency, flexibility, and originality, while vicarious experience through watching the performance of the creative task increased students' creative self-efficacy on fluency, flexibility but not originality. The vicarious experience was more effective in promoting students' creative self-efficacy on fluency and flexibility than mastery experience.

Discussion

Mastery Experience and Creative Self-Efficacy

Bandura (1997) suggested that direct mastery experience is the most important source of efficacy. However, results from this study show that mastery experience through the assessment task where creativity is a requirement did not increase students' creative self-efficacy as hypothesized. The results also showed that the impact of mastery experience on students' creative self-efficacy was lesser than that of vicarious experience in the creativity learning task domain.

However, one thing to be noted is that creativity is a specific domain which is different from mathematics, science and language learning in secondary school. Creativity tasks are always challenging and difficult, in comparison to the academic tasks with standard answers in secondary school learning. The difficulties in creative task arise from as least three aspects. First, it is open-ended without a standard answer. Second, the definition of the creativity concept is vague; thus it is hard to provide an absolute standard to guide the evaluation of creativity. Third, autonomy is necessary in promoting a creative environment. However, the autonomy in learning also increases the difficulty level of the task, especially in the Asian learning context where students may not be used to the autonomy in learning and assessment (Watkins, 2000; Watkins & Biggs, 1996).

The results from the current study are particularly interesting and important in that it shows that mastery experience may not be effective in promoting self-efficacy in the creative domain where the tasks are considered challenging and difficult. These findings are partly supported by Bandura (1997) who postulated that complexity of task is a possible constraint on the development of efficacy beliefs. Participants' feedback also confirmed this explanation. Through a routine term feedback session with the students on the class's progress and the pedagogy used during the term, the

students strongly echoed their reason for not feeling a sense of creative self-efficacy despite having put up a creative performance and having done well in the performance. The students in the mastery experience group shared their feelings of frustration on the given assessment task as they felt it was very arduous. Despite being told to adopt Amabile's (1990) definition of creativity, for the product to be novel and useful, they shared that the autonomy given and the vagueness of the creativity concept perplexed them. The participants shared that the freedom and the subjectivity of the task made the process of producing the creative micro-teaching lesson very difficult, thus convincing themselves of their lack of ability to be creative.

In addition, stress level may also be a factor in relation to the task difficulty. When faced with a challenging and difficult situation, students may feel stressed. Such stress may affect students' judgement of their self-efficacy because physiological and affective states are also the source of self-efficacy (Bandura, 1997; Ng, 2007).

The findings from the current study also suggest that mastery experience with successful performance per se may not necessarily increase creative self-efficacy. Although Bandura focused on the end product, whether the product is a success or failure is not a basis for drawing conclusions on efficacy. Some intervening factors may co-exist and influence the relations between mastery experience and self-efficacy, e.g. task difficulty, effort level, stress, or anxiety. For example, in the creative education domain context, creative tasks are usually challenging and difficult for students and require much input efforts. Even with successful performances, students may not feel a sense of efficacy. Thus, future studies are needed to expound on the intervening factors that acts on the sources of creative self-efficacy, such as task difficulty, stress level.

These findings also contribute as a cross-cultural example to the larger motivational self-beliefs and creativity education literature. It shows practitioners and policy makers the importance of taking into consideration the cultural context of systems when promoting creative self-efficacy. When applying pedagogies and activities to promote creative self-efficacy in an academic driven context, where creativity is not widely embraced, practitioners need to provide scaffolding to manage the difficulty level of the task and ensure that the flexibility and freedom given to students, which are essential to develop creativity, do not hinder the development of their creative self-efficacy.

Vicarious Experience and Creative Self Efficacy

The findings of this study showed that vicarious experience has a positive impact on students' creative self-efficacy on fluency and flexibility as hypothesized. The positive impact is not surprising since the power of modelling, especially peer modelling, and self-appraisal of one's capabilities has been exhibited in numerous studies (Festinger, 1954; Goethals & Darley, 1977; Litt, 1998; Schunk & Hanson, 1985, 1989; Suls & Miller, 1977). The participants, being adolescents, fit into the description of the group of people who are more susceptible to vicarious experience.

Bandura (1997) asserted that vicarious experience is impactful, particularly on those who are unsure about their abilities. Adolescents, being at an impressionable age, are generally still in search of their identity and may be unsure of their own strengths and weaknesses (Erikson, 1963), especially in the creative domain where they may have little prior experiences and uncertain about their creative ability. According to Bandura (1997), another situation where vicarious experience thrives is under circumstances where the definition of success is ambiguous, where activities and performances have no absolute measure of success and adequacy. This is also the case in the creative domain.

The students in the vicarious experience group reported that the vicarious experience helped them to be confident of their ability to be creative. They shared that seeing the final creative product put forth by the other group, convinced them that they too would be able to do the same. This further suggests that vicarious experience can have strong impacts on adolescents, as their judgement of their abilities tends to be based on social standards and comparison to their peers rather than their effort (Daniels & Meece, 2008).

Although the current study suggests that vicarious experience can promote creative self-efficacy on fluency and flexibility, it cannot effectively promote creative self-efficacy in originality. This might be due to the fact that originality is the hardest and the most challenging component in creativity. Participants are not certain in the judgement of the originality of the task performance.

Although correlational studies showed that vicarious experience had weaker effects on self-efficacy compared to mastery experience, the current results do not support this claim in the creative domain as shown through this field experimental study. The current study suggests that vicarious experience may have even more powerful effect on self-efficacy in a particular context. These findings also suggest that future studies should examine the effects of different sources of self-efficacy in various domains, e.g. creativity, mathematics and language.

Limitations of Current Study and Future Directions

Although the current field experimental study can enhance internal validity compared to correlational studies, the researchers also have to compromise on certain factors that are hard to control in real classroom learning situations.

First, while students in the vicarious experience group were not instructed to present their micro-teaching tasks in a creative and novel way, this cannot exclude the possibility that the participants may have put in efforts to make it creative. However, this possibility is low as the vicarious group only presented their micro-teaching tasks with simple power point presentations for content delivery and were not observed to be creative. Future studies can consider adopting other designs to strengthen the internal validity, such as switching replications, double pre-test design.

Second, the current study only measured short-term creative self-efficacy, i.e. measuring their efficacy level immediately after the treatment experience. The long-

term effects of mastery experience and vicarious experience on self-efficacy is still uncertain. Vicarious experience may have a stronger short-term effect on efficacy but mastery experience's effect on creative self-efficacy may only appear later in the relatively longer term. Future studies may consider a longitudinal design to track the long-term effects.

Third, future investigations may also explore the potential mediating or moderating factors. For example, rather than merely focusing on the impact of mastery and vicarious experiences, it is important to measure and examine the factors that affect (mediate or moderate) the effectiveness of the mastery and vicarious experience on self-efficacy (e.g. task difficulty, effort level).

Fourth, this study was conducted in a history class of a Singapore secondary school. The generalization of the findings to other subjects, grade level, countries must be done with caution. More studies are needed to examine the complex relations between mastery experience, vicarious experience and self-efficacy in diverse academic domains and cultural settings.

Conclusions and Implications

This study examined the impact of mastery and vicarious experiences on creative self-efficacy with the intention of providing policy makers and practitioners a better understanding of how creative self-efficacy can be developed in students through performance assessment and activities. The results showed that mastery experience through the assessment task, where creativity was a requirement, did not increase students' creative self-efficacy on fluency, flexibility and originality; while vicarious experience through watching the performance of the creative task increased students' creative self-efficacy on fluency, flexibility but not originality. The vicarious experience was more effective in promoting students' creative self-efficacy on fluency and flexibility than mastery experience. These results suggested that teachers should promote vicarious experience to enhance students' creative self-efficacy. However, teachers also need to be cautious when using mastery experience to enhance creative self-efficacy because the effects may be mediated or moderated by other factors, e.g. task difficulty, effort involvement level, emotions. To enhance students' creative self-efficacy, teachers need to consider these factors when designing the performance assessment task for students.

Appendix: Assessment Task

Assessment Task

Do some research on the reasons for the War in Europe and conduct a micro-teaching group presentation to report your research on the following three questions.

- How did the world begin to move to war?
- How did Hitler's foreign policy contribute to the war in Europe?
- How did the League of Nations contribute to the war in Europe?

Requirements for Mastery Experience Group

Your presentation must be factually accurate and must help your fellow classmates to understand the topic.

You are to present the topic to the class in a *creative way*. It must be delivered in a *novel and original manner* so that they can learn in a *creative and interesting way*. You may present in any manner you deem appropriate. You may make use of different methods to enhance your presentation.

Your presentation should last between 35 and 45 min. This presentation will constitute 15 % of your Term 3 marks.

Assessment Rubrics: Total 15 marks

	Demonstrates very strongly	Demonstrates strongly	Demonstrates	Demonstrates some	Does not demonstrate
Accuracy	5	4	3	2	1
Clarity	5	4	3	2	1
Creativity	5	4	3	2	1

Requirements for Vicarious Experience Group

Your presentation must be factually accurate and must help your fellow classmates to understand the topic.

Your presentation should last between 35 and 45 min. This presentation will constitute 15 % of your Term 3 marks.

Assessment Rubrics: Total 15 marks

	Demonstrates very strongly	Demonstrates strongly	Demonstrates	Demonstrates some	Does not demonstrate
Accuracy	7.5	6	4.5	3	1.5
Clarity	7.5	6	4.5	3	1.5

For more information about students' work, please contact the authors directly.

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Part IX
Socio-cultural Influences

Chapter 35
Materialism and Achievement Motivation: How Chinese Primary School Children, Secondary School Teenagers, and University Students are Similar

Lisbeth Ku

Abstract Drawing samples from primary school children, secondary school teen-agers, and university students, my colleagues and I (Ku, Dittmar & Banerjee, J Educ Psychol 104, 74–86, 2012; J Personality Soc Psychol, 106, 803–821, 2014; Ku and Zaroff, Achievement motivation at times of difficulties: the longitudinal effects of intrinsic and extrinsic life goal on Chinese university students' learning. Manuscript under review for publication, 2014) argue that a materialist orientation in learners lowers mastery-oriented learning motivation, fosters performance-oriented achieve-ment goals, and leads to poorer learning outcomes. We first use cross-sectional stud-ies to show that materialism is linked directly to lower exam performance, and that this link is mediated by lower mastery and heightened performance goals. With longitudinal evidence we further demonstrate that initial materialism predicts worse exam grades, suggesting a detrimental long-term effect on school performance. We then prime school children with a momentary orientation toward materialism, and show that such an orientation leads children to adopt performance goals, choose a performance-oriented learning task, and give up on the task more quickly. These findings illustrate that materialism works its negative effects on school performance by undermining intrinsic mastery-oriented learning and shifting learners' attention from competence *development* to competence *demonstration*. All the converging evidences suggest values that are deeply embedded in our contemporary, and increasingly global consumer society – such as overt preoccupation with consump-tion, the belief that wealth and financial success are the most important goals to pursue, and the view that social power and status rest on wealth and possessions – are important considerations for a research paradigm that examines factors that facilitate youths' intrinsic learning and enhance learning outcomes.

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Erich Fromm, in his seminal, but often under-appreciated book *To Have or To Be* (1976/1982), described modern mass consumer society as a 'having' society that is defined by wishes to acquire material goods, to keep them, and to increase them. Those who have wealth and expensive possessions are admired and envied as superior beings, and those who have very little are still obsessed with whatever they may own, seeking to preserve and increase their possessions. The reason why wealth and possessions are so important in what Fromm called the 'having' mode of existence is that possessions have taken on the role of expressing who we are. According to Fromm, the sentence "I have something" does not only refer to my ownership of the possession, but it also expresses a definition of *I* through my possession of the object. This turns *I* into the things that *I have*. Therefore, while I own possessions, possessions also own me, because my sense of identity rests upon my having them.

Fromm remarked that in society there were some young people whose lifestyle was not dominated by hidden forms of acquisition and having, but expressions of genuine joy in doing what they liked to do. Although he did not collect or present empirical data to support his analysis, Fromm believed that the number of these young people had been markedly decreasing since the late 1960s. He may well be right; archival data of over 9 million American university freshmen from 1966 to 1996 show that increasingly more students agree that the chief benefits of a university education are to 'increase one's earning power' (increased from 54 % in 1966 to 71 % in 1996) and to 'be able to make more money' (increased from 50 % in 1966 to 75 % in 1996, Astin, 1998). This growing orientation toward materialistic values is not limited to the US. In Norway, Hellevik (2003) found a similar shift of values and a large age cohort difference in materialism. In China, Gu, Hung and Tse (2005) found that adolescents in 15 major Chinese cities endorse a higher level of consumption-oriented materialism than the parent generation.

If materialism is becoming an increasingly prominent feature of contemporary society, affecting everyone to some extent but especially young people, then an important question to ask is whether materialism is related to young people's learning. This question can be split further into at least two different questions: (a) whether materialism is related to academic aspirations of young people and (b) whether materialism is related to actual learning processes and outcomes.

In respect to the question of whether there is a relationship between materialism and academic aspiration, the answer could well be 'yes'. The prevalent materialistic values in the society seem to orient students toward the extrinsic, money making outcome of education. According to Self-Determination Theory (SDT, Kasser & Ryan, 1993; Ryan & Deci, 2000), extrinsic motivation propels individuals to take on an activity in order to attain some separable outcome, usually some types of external rewards, while intrinsic motivation prompts individuals to engage in an activity for the inherent satisfaction of the activity itself. Although the pursuit of extrinsic rewards per se is neither positive nor negative, excessive concentration on external rewards can distract people from intrinsic endeavors and interfere with personal integration and actualization. Indeed, Kasser and Ryan demonstrated that extrinsic, contingent pursuit of financial success as a life goal is negatively associated with psychological adjustment when it predominates over other life goals. In the context

of learning and education, it seems extrinsic life goals, such as aspiring to financial success or materialistic values, are likely to link to extrinsic educational aspirations. Support for this contention can be found in a number of different trends we observe in the society these days.

As mentioned earlier, over 70 % of university students in the US agree that a university education is predominately for increasing one's earning power (Astin, 1998). It is not at all surprising that business-related university majors, which are traditionally believed to lead to higher paying jobs, have become the most popular disciplines among university students (Easterlin & Crimmins, 1991). In Hong Kong, Chinese students share a very similar preference (University Grants Committee, Hong Kong, 2014). This association between education – especially in the form of university degrees, which are often seen as essential for one's monetary prospects – and earning power has been widely communicated to young people via different channels, but particularly through the media. Typically, each year around the time of public exam results, it is customary for the Hong Kong media to run stories about "successful" university graduates earning high salaries in multinational companies, potentially reinforcing the belief that the goal of higher education is increased earnings, as opposed to personal development and other intrinsic benefits. Following the financial crisis of 2008, the media is now flooded with stories of how the values of university degrees have "depreciated" as university graduates struggle with unemployment (e.g., Etnet, 2013; Takungpao, 2014).

Is materialism related to actual learning processes and outcomes? Fromm's answer was yes:

> Students in the having mode of existence will listen to a lecture, hearing the words and understanding their logical structure and their meaning and, as best they can, will write down every word in their looseleaf notebooks – so that, later, they can memorize their notes and thus pass an examination. But the content does not become part of their own individual system of thought, enriching and widening it. … The student and the content of the lectures remain strangers to each other, except that each student has become the owner of a collection of statements made by somebody else…. (Fromm, 1976/1982, pp. 17–18).

Fromm's description of students functioning in the having mode highlights behavioral outcomes that are commonly associated with extrinsic, controlled learning motives – the lack of active engagement and conceptual learning. When individuals are motivated to learn in order to gain external rewards or avoid punishment, in other words, when they are extrinsically motivated to learn, they tend to engage more in rote learning and less in conceptual learning. The student in Fromm's having mode, one can argue, is extrinsically motivated to learn as the purpose of learning is to pass exams. The important question then is: What is the empirical evidence for materialism's detrimental effects on intrinsic learning and school performance?

As early as the 1980s, Nicholls and colleagues had already showed that teenagers who held the belief that education should increase one's earning and status were the least likely to commit to learning (Nicholls, Patashnick, & Nolen, 1985). Twenty years later, Goldberg and others also showed that youths who had a higher level of materialistic values orientation tended to report lower school performance

(Goldberg, Gorn, Peracchio, & Bamossy, 2003). The two studies both suggest that an extrinsic, materialistic orientation may be negatively related to both learning motivation and learning outcome. Though these studies provide valuable insights a number of essential questions remain. Is materialism systematically related to learning? Does the relationship generalize to learners regardless of their educational stage? What psychological mechanisms are at work in the relationship between materialism and learning; if materialistic students do indeed perform less well in school, why is that? The direction of the relationship between materialism and learning is also crucial; are more materialistic youths less motivated to learn and thus less likely to do well in school, or do unsuccessful students turn to money and material possessions to compensate for their failures and overcome the self-doubts they perhaps experience at school?

In an attempt to answer the above questions, my colleagues and I (Ku, Dittmar, & Banerjee, 2012, 2014) proposed a theoretical model of associations between materialism and learning that stipulated that materialism was linked to learning outcomes via achievement goals. This model was tested among Chinese and British primary school children aged between 9 and 11 years (Ku et al., 2014), Chinese and British secondary school teenagers aged between 14 and 17 years (Ku et al., 2012), and Chinese university students aged between 18 and 21 years (Ku & Zaroff, 2014). In the following sections, I will first briefly discuss the different conceptualizations of materialism, what we know about achievement goals, and how the two may be related and impact on learning outcomes, before reviewing the evidences that we have gathered so far. The chapter ends with a discussion on the implications of the findings.

Materialism

What is materialism? A prominent conceptualization of materialism is based on self-determination theory (SDT, Ryan & Deci, 2000). Kasser and Ryan (1993, 1996) measure materialism by working out the relative importance of intrinsic life goals (such as self-acceptance or helping others) against extrinsic goals (such as wanting money and achieving financial success). According to SDT, intrinsic goals can bring fulfillment and pleasure because they satisfy our innate psychological needs for competence, autonomy, and relatedness. Extrinsic life goals, on the other hand, are less likely to bring satisfaction and happiness because they are guided by external or controlled factors. Further, in seeking rewards or others' approval, we will inevitably use up time and energy that we can otherwise spend on intrinsic goals pursuit. This is another reason why the pursuit of extrinsic life goals such as acquiring money and material possessions is often associated with lower well-being.

Another major conceptualization of materialism is value orientation. According to Richins and Dawson (1992), people who have highly materialistic values tend to exhibit three highly related sets of beliefs. First, they tend to believe that the acquisition and accumulation of material goods is a prime indicator of success and status.

Second, high materialists place the acquisition of possessions at the center of their lives. Third, people with materialistic values tend to see material possessions as a means to happiness. Thus, possessions and consumption are central to materialists because they view these as essential to their well-being and satisfaction with life.

In addition, Srivastava, Locke, and Bartol (2001) argued that, in the consideration of negative correlates of materialism, it is important to include different motives as the effects of these go beyond and above the influence of the content of the goal itself. Similarly, Banerjee and Dittmar (2008) found that children experiencing greater peer rejection reported higher level of social motives for materialism, which in turn predicted a higher endorsement of materialism. These findings are also in line with SDT's contention that when the basic psychological needs of autonomy, competence and relatedness are frustrated, people tend to seek compensation from extrinsic goals (Kasser & Ryan, 1993, 1996; Ryan & Deci, 2000). Therefore, negative social motives of materialism – such as the belief that money and material possession can help one to gain recognition from and exercise power over peers – are considered as another facet of materialism.

Achievement Goals

Achievement goal theory emphasizes the types of goals individuals pursue in achievement situations, specifically goals that involve either the development or the demonstration of competence (Dweck & Elliot, 1983; Nicholls, 1984). Mastery goals represent a concern with understanding, improving and developing competence. Performance-approach goals involve a desire to demonstrate competence, often characterized by outperforming others and/or gaining external recognition. Performance-avoidance goals represent a worry about not appearing incompetent or less competent than others.

The three achievement goals have been found to associate systematically with a variety of cognitive, affective, and behavioral outcomes in the learning context. When oriented toward mastery goals, individuals tend to be more intrinsically motivated to learn, use more deep processing learning strategies, and have more positive affective reactions toward learning tasks, than when oriented toward performance goals (see Pintrich & Schunk, 2002, for a review). Performance-avoidance goals are negatively correlated with intrinsic motivation (Elliot & Harackiewicz, 1996) and performance (Elliot & Church, 1997). The relationship between performance-approach goals and learning is not quite clear. Various studies have demonstrated association between performance-approach goals and avoidance of novelty and challenge, not seeking help in difficult learning tasks, cheating, and disinclination toward cooperation with peers (see Midgley, Kaplan, & Middleton, 2001 for a review). However, performance-approach goals have also been shown to be positively related to beneficial learning outcomes such as self-perception of academic ability, as well as actual academic achievement (see Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002 for a review).

Studies in cross-cultural psychology have shown that socially oriented academic goals are more important to non-Western learners than to their Western counterparts (e.g., Watkins, Mclnerney, & Lee, 2002), and that the relationship between motivation and learning strategies may also vary across different cultural and social contexts (Watkins, Mclnerney, Lee, Akande, & Regmi, 2002), but in general, the validity of achievement goals holds among Chinese pupils. For example, Chan and Lai's (2007) large-scale study of secondary school students in Hong Kong found similar patterns of associations among the three achievement goals, learning strategies and achievement outcomes as in Western societies – mastery goals were positively related to deep learning strategy, while both performance-approach and performance-avoidance goals were related to surface learning strategy. As for learning outcomes, both mastery and performance-approach goals were positively, while performance-avoidance goals were negatively, related to academic achievement.

Relationships Between Materialism and Learning

As mentioned earlier, we intended to propose and test the validity of a theoretical model that stipulated that materialism was linked to exam performance via achievement goals. Figure 35.1 lays out the specific links among the variables in the model.

Correlational studies have indicated that concern with consumption is negatively related to mastery goals (Ku, 2010). Experimental research shows that having the extrinsic personal goal "image" discourages adoption of mastery goals (Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). Possibly, this is due to the "crowding-out" effect of extrinsic goals (the pursuit of money and image could leave less time and energy for individuals to devote to intrinsic learning and mastery). An additional possibility is that extrinsic rewards get in the way of intrinsic learning; material rewards reduce intrinsic motivation and an interest in tasks. Deci, Koestner, and Ryan (1999) show that this effect is more detrimental for children than for university students. Considering society's predilection with the instrumental purpose of education – that the function of education is to improve one's future earnings – it is conceivable that this sort of instrumental attitude toward education can help make materialistic children more attentive to external rewards (such as good grades) which

Fig. 35.1 Theoretical model of associations among materialism, achievement goals, and learning outcomes
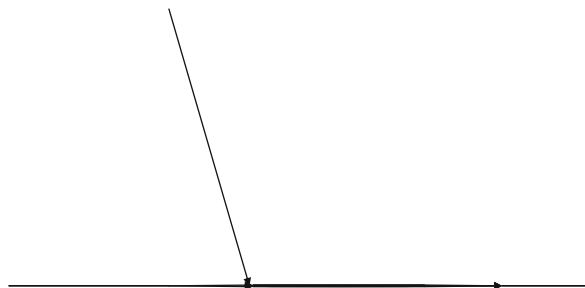
would go on to discourage an intrinsic engagement with learning. We therefore hypothesize that materialism is negatively associated with mastery goals.

Previous research tells us that materialistic people tend to be more concerned with self-presentation and more likely to compare themselves to others (Schroeder & Dugal, 1995; Chan, 2008). In a similar fashion, performance goals are characterized by a desire to document and demonstrate one's own ability, or to avoid revealing a lack of ability when it is perceived to be low. Those who adopt performance goals are likely to use social comparisons to make an assessment of normative ability (Ames & Ames, 1981) and are likely to feel satisfaction from superior performance relative to others (Butler, 1992). If the endorsement of a materialist value orientation involves social comparison – with a resulting tendency to compare possessions with others' – this can conceivably translate to competition with others in the learning context as well. Therefore, materialism is hypothesized to correlate with both types of performance goals.

Finally, we hypothesized that mastery goals and performance-avoidance goals would both be related to exam performance (mastery goals positively and performance-avoidance negatively). We made no specific hypothesis with regards to the relationship of performance-approach goals and exam results, since research in achievement goals suggest that the relationship varies across different age groups.

Empirical Studies and Findings: Primary School Children (Ku et al., 2014)

In the first cross-sectional study, 197 school children (100 from Hong Kong and 97 from the UK) answered questions on the three facets of materialism (Banerjee & Dittmar, 2008; Goldberg et al., 2003; Kasser & Ryan, 1993) and three achievement goals (Midgley, Maehr, Hicks, Roeser, Urdan, & Anderman, 1997). Their school exam results were collected at the end of the school term from their respective school teachers. The children's materialism is linked to lower exam performance. This link is mediated significantly by mastery and performance avoidance orientations, with patterns not differing across countries. This supports the directional predictions from the theoretical model; materialistic children perform worse in exams because they are more concerned with not looking stupid in their class and less concerned with learning new material.

Ninety-seven of the original 100 Chinese children were tested again 1 year after the initial study. The longitudinal results demonstrated that individual children's materialism at the first time point significantly predicted deterioration in their exam performance 1 year later. At the same time, the path in the opposite direction proved non-significant. The findings provided support for the hypothesis that materialism has a significant negative long-term effect on children's school performance. The temporal sequence between materialism and exam grades confirms that materialism is an antecedent of lower school performance, a core condition for any inference of causality.

Two experiments were then conducted to test for causal effects that materialism has on learning by priming a temporary orientation toward materialism (i.e., state materialism). In the first experiment, 186 Hong Kong Chinese children participated. Roughly half of them ($n = 96$) first wrote about what they thought the trendiest toys and/or clothes were, and then listed five benefits of having money and possessing the trendiest toys and/or clothes. Then they were asked to imagine receiving a windfall gift of HKD2,000 (approximately USD313) and to write down the things that they would buy with that money. Finally, the children completed the assessment of their achievement goals and materialism. The other half ($n = 90$) completed the assessment of their achievement goals and materialist orientation first, and subsequently listed their favorite toys and clothes, the benefits of having money and material possessions, and the things they would buy with the imagined windfall gift. Results show that by writing about the trendiest toys and clothes, and the benefits of having these material goods, children were primed with a materialist value orientation, which then caused systematic changes in their learning motivations. Specifically, heightened state materialism discouraged the adoption of mastery goals and promoted both performance approach and performance avoidance goals. These results provide evidence to support the hypotheses about how materialism directly affects Chinese school children's learning motivations.

The second experiment was conducted with 84 British children, who watched a video diary that was made by a child of their own age and sex. Forty-two of them watched a 'materialistic' video, in which the child talked about getting money and trendy toys for birthday presents, and using those to gain peer recognition. Another 42 watched a 'non-materialistic' video, in which the child talked about spending time with friends and family for their birthday. Afterward, all children were presented with a choice of two puzzles (i.e., task choice), one supposedly could help them to learn new skills, and the other would demonstrate their existing skills. No matter what their choice was, the children were all given the same puzzle to work on, and the amount of time they spent on the puzzle (i.e., task persistence) was recorded. The results of the experiment strongly support the proposition that materialism negatively affects children's learning. When primed with (state) materialism, the children became much more likely to pass up the chance of a new learning experience and, instead, choose a performance-oriented task. Fewer of them persisted with the chosen task until a given time limit was reached, and they withdrew their effort significantly faster.

Empirical Studies and Findings: Secondary School Teenagers (Ku et al., 2012)

The cross-sectional study consisted of 557 teenagers, who formed four different groups: two age groups (Year 9 and Year 12 pupils), and two countries (Hong Kong China and UK). All participants completed measures on materialism (Banerjee & Dittmar, 2008; Goldberg et al., 2003; Kasser & Ryan, 1993) and achievement goals

(Midgley et al., 1997). School exam results were collected from their respective schools at the end of the academic term. Results supported the theoretical model that materialism was negatively associated with mastery goals and positively with performance-approach and performance-avoidance goals in both Hong Kong and the UK, and among both the 14- and 17-year-olds. Both mastery and performance-avoidance goals were, in turn, associated with school results in directions that were consistent with the theoretical model.

A 1-year longitudinal follow-up was conducted in Hong Kong and was successful in assessing 228 pupils from the original 320 in Wave 1. There were 122 Year 10 pupils and 106 Year 13. Materialism, particularly the relative importance of financial goals, was longitudinally related with achievement goals. After controlling for initial level of achievement goals, initial orientation toward materialism was associated with *decreases* in Mastery goals and *increases* in performance-avoidance goals. In other words, teenagers who valued financial success over other intrinsic life goals such as relatedness not only tended to be less mastery-oriented in their learning in the first place, but their intrinsic mastery-oriented motivation also tended to decrease over time. Furthermore, they also tended to become increasingly focused on avoiding demonstrating incompetence. Among the 17-year-olds, there was also a lagged effect of performance goals on materialism over a 1-year period. While materialism was in general associated with performance-approach goals in the same time frame, it did not have any longitudinal effects on the goals across the two waves. Instead, it was performance-approach goals that predicted *increases* in materialism. In other words, teenagers who were originally performance-focused in their learning went on to develop more materialistic values and life goals over a period of 1 year. Whereas for exam performance, it was among the 14-year-olds that materialism seemed to have a most important effect – materialism predicted negative *changes* in school performance over time.

Empirical Studies and Findings: University Students (Ku & Zaroff, 2014)

Two hundred and seventy-four ethnic Chinese students in Macao, China participated in the study. In the beginning of the semester, the participants filled out a short questionnaire that evaluated their orientation toward materialism (Kasser & Ryan, 1996). Approximately 5 weeks later, immediately after a supposedly very difficult exam, they filled out a second part of the questionnaire which assessed their achievement motivation (Anderman, Urdan, & Roeser, 2003) and their evaluation of the difficulty of the exam and their own performance in the exam. Another 5 weeks later, the participants sat in their second exam. Their scores in both exams were collected from the course instructors after gaining consent from the participants. The majority of the students (over 70 %) rated the exam being very difficult and they were not confident about their performance. This established the premises for evaluating the question that, when faced with difficulties, what types of achievement

goals would the students adopt, and how their adoption of different types of achievement goals may affect their final exam performance. Results showed that students who were more oriented toward materialism in the beginning of the semester were less likely to adopt mastery-oriented goals when faced with difficulties in their academic work, and this in turn affected their subsequent exam performance.

Discussion

The theoretical model of materialism and learning that we proposed and set out to test (Ku et al., 2012, 2014) argues that materialism works its negative effects on school performance by undermining intrinsic mastery-oriented learning and shifting learners' attention from competence *development* to competence *demonstration*. This was supported by converging evidence from primary school children, secondary school teenagers and university students. Despite the obvious vast differences among these groups of learners (such as age, educational stages, and cognitive abilities), the patterns of relationships between materialism and learning are the same – materialism is negatively related to mastery goals and positively to performance goals, and in turn these goals have systematic effects on exam performance.

Among children, an orientation toward materialism led to subsequent poorer exam results. When being primed of state materialism, children not only reported a significantly lower level of mastery goals and a higher level of performance goals orientation, but they also showed typically performance-oriented behaviors, such as giving up the chance to learn and instead opted for the opportunity to showcase their ability, and quickly gave up on a difficult task. Among teenagers, those who were relatively materialistic not only tended to be less mastery-oriented in their learning in the first place, but their intrinsic mastery-oriented motivation also tended to decrease over time. This tendency was accompanied by an increased focus on avoiding demonstrating incompetence. Among university students, a prior orientation toward materialism affected the type of achievement goals they adopted when facing academic difficulties. Students who were intrinsically oriented in their life goals adopted mastery goals, and went on to perform better in the subsequent exam. Those who were focused on achieving financial success, however, adopted performance goals when their ability was being challenged, which in turn predicted negative changes in exam performance.

As for the development of materialism, the theoretical model proposed that poorer school performance may cause feelings of insecurities, and children and teenagers may look to money and material possessions to compensate for this sense of insecurity. The longitudinal results from both the children and the teenagers did not support this contention, and exam performance did not seem to have any longitudinal effect on any forms of materialism. However, among secondary school teenagers, the two performance goals had significant lagged effects on materialism across the span of 1 year. These inter-relationships suggest materialism may develop from an underlying value system that also affects performance goals: contingent

self-esteem. According to Deci and Ryan (1995), people who experience contingent self-esteem tend to see their worth as dependent upon accomplishing certain goals, or appearing in certain ways. Kasser, Cohn, Kanner, and Ryan (2007) further argued that the corporate capitalist system that is prevalent in many industrialized societies encourages contingent self-esteem in that wealth equals self-worth. This is very similar to the 'ego-involvement' process that, according to Nicholls (1984), individuals who adopt performance goals experience, since these individuals often see their performance as representative of some central, self-relevant attribute that is essential to their sense of self-esteem. Since both materialism and performance goals are indicative of an increased attention to normative comparison and material symbols of success and status, it is likely that they both develop from this external contingent sense of self-worth. Consequently, it is conceivable that an orientation toward one would result in an intensification of the other.

One of the most pronounced limitations of the findings that my colleagues and I have gathered so far concern the longitudinal relationships between materialism and learning. As our longitudinal studies cover relatively short time spans – 1 year among children and teenagers, and four months among university students, even though our findings appeared to support the theoretical model in large part, they might have failed to capture more long-term developmental changes in the relationships between materialism and learning. One of the relationships that we might have missed is a possible vicious cycle that develops over time, wherein relationships between materialism and learning are bidirectional. Hong Kong has long been recognized as one of the wealthiest societies in Asia, but in recent years was also found to be one of the most materialistic, and the least happy Asian societies (e.g., ACNielsen, 2006; South China Morning Post 2013). As youths in Hong Kong are constantly bombarded by consumer culture messages of money, (material) success, fame, and images, it is plausible that materialism leads to poor learning and hence greater insecurity in the learning context (as well as in self-esteem, and/or peer relations), which then impacts on the adoption of a materialistic values orientation as a maladaptive coping strategy. Therefore, what is needed is longer-term longitudinal, developmental research that can map the transitions from childhood to adolescence, to address the reciprocal effects of a materialist value orientation and learning on each other that extend over several years.

Future investigations of the impact materialism has on learning should also sample groups of learners from various societies that are disparate in terms of culture, degree of development, and national wealth. The research findings reviewed here are to some extent limited in the degree to which they may be generalized because it is not clear whether the patterns uncovered are limited to developed societies which exhibit a high saturation of consumer culture, or whether they can also be applied to other, less developed societies in which children are not as exposed to marketing efforts and consumer culture. Furthermore, it is also important to distinguish the potential different effects between more traditional, national culture and the more contemporary, global culture of consumerism. For example, it has been argued that the Chinese view learning as a moral, virtuous act, and therefore focuses on the use of effort as a way to improve oneself (Li, 2002, 2005). While Hong Kong

Chinese learners may share these characteristics with those from other parts of China due to the similar cultural heritage, Hong Kong students may well have more similarities with pupils in other western, industrialized societies than with their Chinese mainland counterparts due to the different degrees of consumer culture penetration. Future cross-cultural studies are therefore needed to ascertain not only the influence of more traditional, national cultures, but also the effects of the contemporary global culture of consumerism.

Important practical implications are indicated by the findings on the relationship between materialism and learning. Contemporary culture's prevalent emphasis on a luxurious lifestyle with expensive possessions and conspicuous consumption appears to be negatively impacting our youths' learning motivations and consequently school performance. Materialistic values, the negative social motives behind materialism and long-term goals for wealth and luxury all not only diminish mastery-oriented learning in young people, but also seem to result in a deterioration of school grades over time. Given that the negative effects of a materialistic value orientation on learning has been found in school children as young as 8–10-years-old (Ku et al, 2014), intervention efforts by governments, schools, and parents should focus on this particular age group.

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Chapter 36
Self-Construal, Incremental Beliefs of Ability, and Learning Preferences of Singapore Students

Wenshu Luo and Alexander Seeshing Yeung

Abstract This study investigated how self-construal as a sociocultural indicator relates to Singapore students' incremental beliefs of ability and competitive and cooperative learning preferences, and the mediational role of incremental beliefs of ability in the relationship between self-construal and students' learning preferences. A large sample of 2648 Singapore secondary students from 102 classes took measures of independent and interdependent self-construal, and about 3 months later they took measures of incremental beliefs of math ability and also competitive and cooperative learning preferences in their math study. We conducted multi-group confirmatory factor analysis and structural equation modeling, and the results supported measurement and structural invariance between boys and girls. Interdependent self-construal positively predicted incremental beliefs of math ability, and incremental beliefs of math ability were positively associated with both competitive and cooperative learning preferences. Interdependent self-construal positively predicted cooperative learning preference both directly and through the mediation of incremental beliefs of math ability; it also positively predicted competitive learning preference indirectly through incremental beliefs of math ability. Independent self-construal directly predicted competitive learning preference positively. The findings and implications for classroom teaching are discussed in the academic context of Singapore.

Keywords Self-construal • Incremental beliefs of ability • Competitive learning • Cooperative learning

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Cross-cultural research has found that people have culture-specific views of the self in relation to others (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Markus & Kitayama, 1991). In general, people in Western individualistic cultures seek to maintain their independence from others and express their unique inner attributes (i.e., independent self-construal). In contrast, people in collectivistic cultures, such as in East Asian countries, tend to incorporate important others from various in-groups in their self-definition and emphasize harmonious interdependence with each other (i.e., interdependent self-construal). Although cultural contexts typically promote the development of one or the other self-construal more strongly, this dichotomy may be too simplistic to describe a culture as characterized by one and not the other. Most researchers agree that to some extent both self-views exist in all societies and individuals vary in the extent to which they construe the self in the culturally mandated way (e.g., Markus & Kitayama, 1991; Oyserman & Lee, 2008; Singelis, 1994).

Self-construal has been assumed to have motivational implications (Markus & Kitayama, 1991). Research has reported that people with high independent self-construal have more personal goals to differentiate themselves from others and to enhance their positive self-views, while those with high interdependent self-construal are more socially motivated to attain harmonious relations with significant others (Brutus & Greguras, 2008; van Horen, Pohlmann, Koeppen, & Hannover, 2008). The role of self-construal in students' motivation and learning has received increasing attention in recent years. For example, Cheng and Lam (2013) reported that social goals (e.g., to be a good son/daughter or to prove teachers' teaching quality) were associated with higher willingness to improve after failure and lower reporting of avoidance behavior for Hong Kong students with interdependent self-construal than for their counterparts with independent self-construal. Hence self-construal seems to have a significant role to play in shaping students' achievement motivation and behavior. Recently, Luo and colleagues reported that self-construal was related to students' achievement goals (Luo, Hogan, Tan et al., 2014; Luo, Hogan, & Paris, 2011). In particular, interdependent self-construal was found to be associated with mastery approach and avoidance goals, while independent self-construal was associated with mastery approach, performance approach, and performance avoidance goals. In this study, we expanded previous research on the role of self-construal in student learning by examining how self-construal relates to students' incremental beliefs of ability and competitive and cooperative learning preferences.

Self-Construal and Incremental Beliefs of Ability

In addition to how people define themselves, cross-cultural differences have also been reported in people's implicit beliefs of ability. For example, in their cross-cultural study, Stevenson and Stigler (1992) reported that there was a greater belief

in malleable intelligence and the importance of effort in Eastern cultures, while there was a greater emphasis on fixed intelligence and the role of ability in Western cultures. This difference has been supported by other studies. For example, Chinese children in Hong Kong were found to endorse a positive relationship between ability and effort perception (Lam, Yim, & Ng, 2008; Salili & Hau, 1994). This is in stark contrast to the conflicting perceptions of Western children (e.g., 11 years old) regarding ability and effort, assuming that those who work hard must not be very intelligent (Barker & Graham, 1987). Similar findings have also been reported in other East Asian cultures. For example, Heine et al. (2001) reported that Japanese undergraduates viewed intelligence as more malleable with effort in comparison to their American counterparts. Evidence seems to show that East Asian students tend to have strong beliefs in improving ability through effort investment.

The incremental beliefs of ability of East Asian students might have been shaped by both the cultural emphasis on learning and effort and the collectivistic nature of the East Asian culture. In general, research suggests a consensus that Chinese people tend to place a high value on learning and effort (Biggs, 1996; Lee, 1996; Li, 2002; Salili, 1996). Corroborating this finding, a recent study also reported that Singapore students attached the highest value to effort when they explained their academic success (Luo, Hogan, Yeung, Sheng, & Aye, 2014). In addition, people from collectivistic cultures are orientated toward group-related self-concepts and identify their ideal self as being closer to their social self (Tang, 1996). In other words, they tend to include important others, such as parents, teachers and peers, in their self-definition, and thus have an interdependent self-construal. Since parents and teachers in the East Asian culture tend to place great emphasis on effort and academic achievement (Hau & Salili, 1991; Salili, 1996), a sense of interdependence and responsibility for important others may further enhance students' beliefs in the importance of effort in their ability development and academic study. In other words, making effort in one's study is not only a means to achieve success, but also a virtue to be cultivated in the learning process in order to perform one's duty and realize self-perfection (Lee, 1996; Li, 2002, 2004).

Self-Construal and Competitive and Cooperative Learning Preferences

In traditional cross-cultural literature on students' learning preferences, competition and cooperation are often regarded as mutually exclusive concepts that are typically valued in individualistic and collectivistic cultures, respectively (Greenfield, Trumbull, & Rothstein-Fisch, 2003; Triandis, Bontempo, & Villareal, 1988). However, the recent research has shown that this correspondence is too simplistic as competition and cooperation may exist in both collectivistic and individualistic cultures (Fulop, Ross, Kuscer, & Pucko, 2007; Shwalb, Shwalb, & Nakazawa, 1995; Watkins, 2007, 2009).

In reality, both competition and cooperation in learning activities may engender motivational processes in student learning. For example, in a study where students were given different scenarios, some American students chose pure competition, mainly for its competitive excitement and challenge, some chose pure cooperation because of its interpersonal enthusiasm, and a large portion of students chose intergroup competition because they wanted to enjoy both competition and teamwork (Tauer & Harackiewicz, 2004). Research into cooperative learning and achievement has also shown that cooperative learning is generally effective because group members help and learn from each other, especially when individual accountability (e.g., every group member needs to show improvement) is encouraged (Slavin, 1996; Whicker, Bol, & Nunnery, 1997). The motivational implication of competition is less clear. Although competition has often been associated with less adaptive outcomes than cooperation, the positive effects of competitive orientations have also been reported in some studies, such as on learning strategies and performance (Barron & Harackiewicz, 2001; King, McInerney, & Watkins, 2012). A recent qualitative study on the nature of competition reported that Chinese students showed mixed views of competition. On the one hand, they welcomed competition because it is motivating and leads to improvement and growth at both individual and societal level; on the other hand, they also found that competition is stressful and affects their relationships with their peers (Watkins, 2007). In sum, research findings suggest that competition and cooperation may both be motivating, and students may have different preference between the two. However, to our knowledge, research so far has not examined how self-construal as a sociocultural indicator of collectivism and individualism at the individual level relates to students' learning preferences.

Purpose and Hypotheses

In this study, we examined how self-construal relates to students' incremental beliefs of math ability and competitive and cooperative learning preferences with Singapore secondary students. Singapore is a westernized East Asian country that combines elements of Confucian ethics with some Western cultural and institutional orientations (Tu, Hejtmanek, & Wachman, 1992). As a result, the traditional and westernized views of the self can coexist in Singapore. For example, research has shown that there is a positive correlation between interdependent and independent self-construal in Singapore (Luo, et al., 2011; Luo, Hogan, Tan et al., 2014; Luo, Hogan, Yeung et al., 2014). However, differences exist in terms of the degree to which people are modernized, which may result in differences in how people construe their selves. In addition, the meritocratic education system in Singapore encourages competition based on ability and effort. Students' performance in high-stakes examinations decides both their pathways in secondary and postsecondary education and their future education opportunities. In order to do well in examinations, many students attend private tuition, which is available in almost every

shopping center in Singapore (Paris, Yeung, Wong, & Luo, 2012). On the other hand, in recent years, cooperative learning has also received increasing emphasis in Singapore schools, which can be in the form of classroom group work or project work (Ee, Wang, Koh, Tan, & Liu, 2009; Koh, Tan, Wang, Ee, & Liu, 2007). Therefore, it is intriguing to examine how Singapore students' self-construal relates to their incremental beliefs of ability and their cooperative and competitive learning preferences.

Based on findings in the literature, we would test the following hypotheses.

1. Interdependent self-construal would positively predict incremental beliefs of math ability, whereas independent self-construal would not.
2. Independent self-construal would positively predict competitive learning but not cooperative learning, while interdependent self-construal would positively predict both competitive and cooperative learning.
3. Incremental beliefs of math ability would be positively associated with both competitive and cooperative learning preferences, and these beliefs should at least partly mediate the relationship between self-construal and learning preferences.

This study was conducted in the context of math study. Although gender differences in math achievements are not always reported, many studies still found that students tended to regard math as masculine and that boys reported stronger ability and interest in math (Meece, Glienke, & Burg, 2006; Mendick, 2005). In addition, some previous studies also found that girls tended to report higher preferences and skills for cooperative learning (Johnson & Engelhard, 1992; Strom & Strom, 2011). In this study, we would examine potential gender differences and investigate the invariance of the above relationships between boys and girls.

Method

Participants and Procedure

This study is part of a larger project on student motivation and self-regulated learning. A large sample of Secondary 2 (8th grade) students from 16 secondary schools in Singapore were invited to participate in the project. The scales for the current study were included in two online surveys with an interval of about 3 months on average. Self-construal was measured in the first survey, and incremental beliefs of math ability and competitive and cooperative learning preferences in math were measured in the second survey. The present study was based on the data of 2648 students who took both surveys. They were from 102 classes, including 966 boys (36.5 %). The participants were on average 13.77 years old ($SD = 0.49$) and composed of 1790 Chinese (67.6 %), 480 Malay (18.1 %), 187 Indian (7.1 %), and 191 others (7.2 %).

Measures

Self-Construal Following Oyserman, Coon, and Kemmelmeier (2002), we measured independent self-construal as the extent to which personal uniqueness and independence is valued, and interdependent self-construal as the extent to which duty to in-group and group harmony is valued. More specifically, we measured independent self-construal with four items, two adapted from Singelis' (1994) Self-Construal Scale with high loadings (over .5) on this dimension, and the other two adapted from Shulruf, Hattie, and Dixon (2007) with high loadings (.60) on uniqueness. Sample items are, "I have my own views about myself, independent of other people," and "I consider myself as a unique person separate from others." We selected four items with relatively high loadings (over .44) on interdependent self-construal in Singelis (1994) to measure this dimension. Sample items include, "My happiness depends on the happiness of those around me," and "It is important for me to maintain harmony with my group." The response categories ranged from 1 (strongly disagree) to 5 (strongly agree). The internal reliabilities for independent and interdependent self-construal were .77 and .71, respectively.

Incremental Beliefs of Ability Three items adapted from Dweck (1999) were employed to measure incremental beliefs of math ability, including "If a student can work hard and persist, she/he can change her/his level of ability in math," "A student's ability in math is pretty much related to how much effort she/he has made," and "A student can become smarter in math if she/he puts effort in learning it." The items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), and the internal consistency reliability was .81.

Competitive and Cooperative Learning Preferences Eight items adapted from PISA (2003) were used to measure competitive learning (four items) and cooperative learning preference (four items). Competitive learning preference was measured as students' positive attitudes toward competition with others in their math study. Sample items include "I learn most efficiently in math when I try to outperform other students," and "I feel very successful when I do better than the other students in my math class." Cooperative learning preference was measured as students' positive attitudes toward working together with others in their math study. Sample items include "In my math study, I enjoy working with other students in groups" and "I do my best work in my math study when I work with other students." The items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The internal consistency reliability for competitive and cooperative learning preference was .80 and .84, respectively.

Results

Before testing the hypothesized mediation model, we did some preliminary analyses to explore the nature of the data. Table 36.1 shows the descriptive statistics of all the five variables based on raw scores. The mean of interdependent self-construal

Table 36.1 Descriptive statistics and correlations based on raw scores

	Total	Boys	Girls					
	M (SD)	M (SD)	M (SD)	(2)	(3)	(4)	(5)	ICC
(1) Independent self-construal	3.69 (.76)	3.71 (.79)	3.68 (.75)	.52*	.13*	.22*	.19*	.032
(2) Interdependent self-construal	3.85 (.69)	3.86 (.73)	3.84 (.66)	–	.18*	.16*	.28*	.019
(3) Incremental beliefs	4.07 (.75)	4.06 (.78)	4.07 (.73)		–	.24*	.27*	.024
(4) Competitive learning	3.46 (.83)	3.60 (.83)*	3.38 (.82)*			–	.45*	.035
(5) Cooperative learning	3.53 (.85)	3.66 (.86)*	3.46 (.83)*				–	.026

Note: * $p < .001$ for t test between boys and girls

($M = 3.85$) was slightly higher than that of independent self-construal ($M = 3.69$). By doing t-tests, we found gender differences only in the two learning preferences, with boys higher on both competitive and cooperative learning preferences. Table 36.1 also shows that all the five variables were positively correlated with each other, with low to moderate correlation coefficients. In addition, we also calculated intra-class correlations to decompose the variance in each of the variables at class and student levels. As shown in Table 36.1, ICCs were all less than 4 %, indicating very small variance in each variable due to class level differences. As a result, we decided to test the measurement and mediation model only at the student level.

We then tested the measurement model and its equivalence across boys and girls. Based on suggestions in the literature (Sharma, Durvasula, & Ployhart, 2012; Vandenberg & Lance, 2000), we compared three nested models in sequence to test measurement equivalence between boys and girls: Model 1 with configural invariance (the same factor pattern), Model 2 with metric equivalence (the same factor loadings), and Model 3 with both metric and scalar equivalence (the same factor loadings and intercepts of indicators). The goodness-of-fit indexes of the three models are shown in Table 36.2. Since chi-square statistic is sensitive to sample size, researchers have suggested using the difference in other goodness-of-fit statistics to compare nested models. For example, if the difference in comparative fit index (CFI) between two nested models is no larger than .01, the more restricted model should not be rejected (Cheung & Rensvold, 2002). Comparing the three models in Table 36.2, we can see that the most parsimonious Model 3 was supported, indicating measurement equivalence between boys and girls. With both metric and scalar equivalence met, gender differences in the latent variables were tested in Model 3. Gender differences were found only in competitive ($p < .001$) and cooperative learning ($p < .001$), with boys higher than girls in both variables.

We further tested the invariance of the factor variance and covariance matrix between girls and boys (Model 4) before testing the hypothesized mediation model. If the fit of Model 4 is not worse than that of Model 3, any structural model among the latent variables can be taken as invariant across the two groups (Vandenberg & Lance, 2000). As shown in Table 36.2, Model 4 was also supported. Therefore, we combined the data of boys and girls in the following analysis. To test the hypothesized mediation model, we compared it with a more complex model in which we

Table 36.2 Goodness-of-fit indexes for measurement and structural models

Models	χ^2 (df)	RMSEA (90 % CI)	CFI	TLI	SRMR
Model 1 (configural invariance)	1280.129 (284)	.051 (.049, .054)	.943	.932	.036
Model 2 (metric equivalence)	1327.920 (298)	.051 (.048, .054)	.942	.933	.039
Model 3 (scalar equivalence)	1457.372 (312)	.053 (.050, .055)	.935	.929	.039
Model 4 (structural invariance)	1499.199 (327)	.052 (.049, .055)	.933	.930	.047
Model 5 (gender combined)	1145.011 (142)	.052 (.049, .054)	.943	.931	.034
Model 6 (final model)	1148.929 (145)	.051 (.048, .054)	.943	.933	.034

Note: *RMSEA* root mean square error of approximation, *CFI* comparative fit Index, *TLI* Tucker Lewis index, SRMR standardized root mean square residual
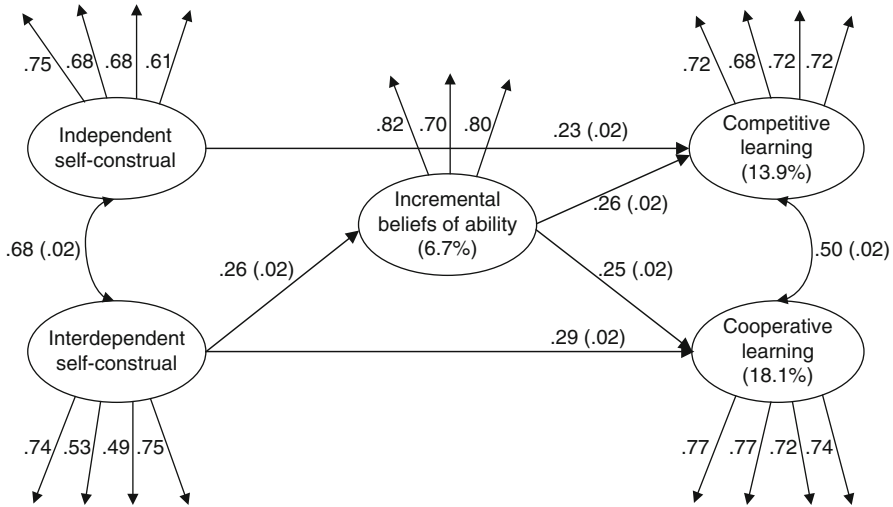
Fig. 36.1 The final model of self-construal, incremental beliefs, and learning preferences. *Note*. All the standardized factor loadings, path coefficients, and correlation coefficients were significant at $p < .001$

added two more paths that were not included in the hypothesized mediation model: the path from independent self-construal to incremental beliefs of math ability and the direct path from independent self-construal to cooperative learning. Because independent and interdependent self-construals were positively correlated, if this more complex model would not fit better than the more parsimonious hypothesized mediation model, it would provide strong support for the hypothesized mediation model. As shown in Table 36.2, the more complex model (Model 5) showed a good fit. However, we found three paths that were not significant: the two added paths and also the direct path from interdependent self-construal to competitive learning. The three paths were then removed in Model 6. Compared with Model 5, the more parsimonious Model 6 was accepted. The standardized path coefficients in Model 6 are shown in Fig. 36.1. Through incremental beliefs of math ability, both of the two indirect effects from interdependent self-construal to competitive ($\beta = 0.07, p < .001$) and cooperative learning preferences ($\beta = 0.06, p < .001$) were significant.

Discussion

In this study, we examined how students' self-construal relates to incremental beliefs of ability and two learning preferences (competitive and cooperative). We tested three hypotheses and found that the following relationships were invariant between boys and girls.

1. Interdependent self-construal positively predicted incremental beliefs of math ability, and independent self-construal did not.
2. Independent self-construal positively predicted competitive learning preference but not cooperative learning preference, while interdependent self-construal positively predicted both competitive and cooperative learning preferences.
3. Incremental beliefs of math ability were positively associated with both competitive and cooperative learning preferences, and such beliefs mediated the relationship between interdependent self-construal and both competitive and cooperative learning preferences.

Implications for Theory and Practice

The support for Hypotheses 1 and 2 has reinforced the significance of self-construal in shaping students' motivational processes (Kitayama, et al., 1997; Markus & Kitayama, 1991). Consistent with the literature, we found a positive correlation between interdependent and independent self with an Asian sample (Luo et al., 2011; Luo, Hogan, Tan et al., 2014; Luo, Hogan, Yeung et al., 2014). However, given the relatively higher mean of interdependent self-construal and its stronger predictions (Figure 36.1) of incremental beliefs of ability and both learning preferences (competitive and cooperative), an emphasis on interdependent self-construal is likely to be beneficial to students, particularly from an Asian background.

In this study, we found that only interdependent self-construal uniquely predicted incremental beliefs of math ability. It has been reported in the literature that people from East Asia countries tend to perceive ability and effort to be positively related (Lam et al., 2008; Salili & Hau, 1994). For example, Chinese children believe that "people working hard have higher ability and those who have high ability must have worked hard" (Salili & Hau, p. 233). However, as a westernized East Asian country with English as the medium of instruction, Singapore mixes the traditional Confucian and Western individualistic cultural orientations. As found in this and previous studies, the traditional and westernized views of the self can coexist in Singapore (Luo et al., 2011; Luo, Hogan, Tan et al., 2014; Luo, Hogan, Yeung et al., 2014). Although the traditional Confucian culture emphasizes the importance of learning and making effort, the finding of this study suggests that this cultural norm might only affect the beliefs of ability for those with relatively strong interdependent self-views. This might be because students with an interdependent self-construal tend to internalize the traditional values on learning and effort shared by important others from various in-groups.

The most important finding in the present study is the meditational role of incremental beliefs of ability in Hypothesis 3, as demonstrated in Figure 36.1. Essentially, incremental beliefs mediated the relationships between interdependent self-construal and both competitive and cooperative learning preferences. That is, for Singapore students who have a relatively higher interdependent self-construal, they tend to value effort in learning as emphasized in the traditional culture and thus have a stronger belief in incremental nature of ability through effort (Luo, Hogan, Tan et al., 2014; Salili & Hau, 1994; Stevenson & Stigler, 1992). As a result, their interdependent self-construal orients them toward two major learning preferences (competitive and cooperative learning). To put it in a simpler way, Singapore students who hold a stronger interdependent self-construal are likely to also believe in the possibility of improving ability through effort, which in turn facilitates both competitive and cooperative learning preferences. The finding suggests that for students with interdependent self-construal and incremental beliefs, not only cooperation but also competition might be motivating and lead to competency development (King et al., 2012; Watkins, 2007). Interestingly, the correlation between the two learning preferences ($r = .50$) indicates that competitive and cooperative learning preferences did coexist in Singapore classrooms, as suggested by other researchers (Fulop et al., 2007; Shwalb et al., 1995; Watkins, 2007).

It is also noteworthy that in this study interdependent and independent self-construal also showed direct predictive effect on cooperative and competitive learning preferences, respectively. This finding is consistent with the traditional culture-specific view of competition and cooperation (Cox, Lobel, & McLeod, 1991; Earley, 1993; Greenfield et al., 2003; Triandis et al., 1988). It is likely that students with high independent self-construal tend to express their unique inner traits and enhance their positive self-views through standing out in competitive learning situations. In contrast, students with high interdependent self-construal tend to achieve their social goals of building positive inter-relatedness through working together with others in cooperative learning situations. This is consistent with the finding that Hong Kong Chinese students tended to form collaborative groups spontaneously when doing assignments (Tang, 1996). These unique contributions of self-construal to learning preferences are beyond the mediation of incremental beliefs of ability in this study, suggesting that the implications of self-construal in student learning can only be partially explained by students' implicit theories of ability.

The findings in this study have practical implications for teaching and learning. Through group processes, cooperative learning when structured properly may not only promote student achievement (Slavin, 1996; Whicker et al., 1997), but also develop various important skills, such as communicating viewpoints, clarifying information, and appraising information from different perspectives (Tang, 1996). In Singapore, although the educational environment is very competitive, collaborative learning and problem solving has gained increasing emphasis recently in education in the view of its value in cultivating twenty-first century competencies in students and preparing them to meet the demands of future workplace (Ee et al., 2009; Koh et al., 2007). Our findings suggest that for Asian students, such as in Singapore, who have access to traditional and modern cultures, it is beneficial to not

only build students' collectivist self-views in relation to the social context they live in, but also value the traditional Asian belief of enhancing ability through effort. These self-related beliefs are likely to lead individuals to enjoy both competitive and cooperative learning. The unique contribution of interdependent self-construal to cooperative learning also implies that the effectiveness of cooperative learning may be enhanced if the group mechanism can help Asian students achieve their social goals. For example, it has been reported that students from Vietnam enjoyed their group work more and made more effort when the groups were formed based on existing friendships than based on academic abilities (Phuong-Mai, Terlouw, Pilot, & Elliott, 2009). In addition, the findings of this study suggest that an independent self-construal would at best lead to a preference for competitive learning. This means that an overemphasis of independent self-construal could result in students competing with others to enhance their self-regards, which may lead to more stress on the part of students (Watkins, 2007).

Strengths and Limitations

The large sample size ($N=2648$ from 102 classes) is definitely a strength of this study. However, it should be noted that the sample is not representative of the Singapore population (e.g., in terms of gender), so the current findings cannot be taken as representative of Singapore or Asian students. The tests of measurement and structural invariance across genders and use of structural equation modeling to test relations among latent constructs are also strengths of this study. Although using self-construals measured in the first survey as predictors of incremental beliefs and the two learning preferences (competitive and cooperative) as outcomes were reasonable to test the current hypotheses, however, the causal ordering of the variables could not be rigorously established in this study. A stronger test of the causal ordering of the variables would require real longitudinal data that place the constructs in a temporal sequence and rule out alternative explanations. Nevertheless, the mediation model found in this study did provide us with some direction for a more complete longitudinal design in further research.

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Chapter 37
Social Axioms and Academic Achievement Among Filipino College Students

Adonis P. David

Abstract This study explored the association of social beliefs or social axioms and academic achievement among Filipino college students in the Philippines. A survey questionnaire was administered to a sample of Filipino students and their responses were analyzed using hierarchical regression analysis. Controlling for the effects of the Filipino students' task value and self-efficacy in mathematics, results indicate that only fate control was predictive of the Filipino students' academic achievement as measured by their final grade in mathematics. Specifically, fate control was found to be a negative predictor of students' achievement. The results of the study highlight the possible role of social axioms on students' academic achievement even when students' achievement motivation is taken into account. The results are discussed in terms how the Filipino learners' beliefs on fate control might influence achievement in culture-specific ways.

Keywords Social axioms • Fate control • Academic achievement • Filipino learners

A number of recent researches in educational psychology have focused on investigating how non-cognitive variables contribute to students' academic success. One of the most widely studied non-cognitive variables concerns students' personal or self-belief systems. These personal beliefs are considered to affect students' motivation to engage and persist in achievement-related behaviors (Shell & Usman, 2008). These self-belief constructs include academic self-concept (Seaton, Marsch, & Craven, 2009), self-efficacy (Williams & Williams, 2010), and perceived academic control (Ruhtig, Haynes, Stupnisky, & Perry, 2009). Recently, there have been efforts to investigate the role of a set of social beliefs or social axioms in the educational domain. However, there seems to be not much work done on the possible influence of social axioms on students' academic achievement. A review of the literature yielded only two published studies on the predictive effect of social axioms on academic achievement, and none were conducted with Filipino students. In this paper, I report the results of an exploratory study on the association between social axioms and academic achievement among a sample of Filipino college students in

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the Philippines using a recently validated short-version of the Social Axioms Survey (SAS; Leung et al., 2012).

Social Axioms

Social axioms are general beliefs that a person may hold about the social world. Social axioms are social beliefs as they are assumed to have been shaped through long-term socialization processes (Lai, Bond, & Hui, 2007). These beliefs are general as they are not specific to a particular social context (Bernardo, 2013) and are regarded as central in people's beliefs systems (Leung et al., 2002). The literature on social axioms provides evidence on their roles on various psychological outcomes, including outcomes in the educational domain. Since social axioms function to guide people's behaviors in different situations (Leung et al.), this means that individuals may make a choice, perform a behavior, or react in a situation depending on the degree to which they endorse a particular social belief or social axiom. For example, social axioms may serve as guidance for what is attainable and as a consequence may shape people's self-regulatory orientations (Hui & Bond, 2010).

Leung et al. (2002) identified five individual-level dimensions of social axioms – *fate control, religiosity, reward for application, social complexity, and social cynicism*. Social cynicism is a "belief syndrome that portrays a negative view of human kind" (Hui & Hui, 2009, p. 19) and "indicates the extent to which actors expect positive versus negative outcomes from their engagements with life, especially with more powerful others" (Leung & Bond, 2004, p. 119). Social complexity refers to the social belief that "the outcome of events is uncertain" (Bond, Leung, Au, Tong, & Chemonges-Nielson, 2004, p. 2) and "indicates an actor's judgments about the variability of individual behavior and the number of influences involved in determining social outcomes, both issues reflecting a complex theory of social causation" (Leung & Bond, 2004, p. 119). Religiosity, meanwhile, refers to "the belief in the existence of a higher power" (Hui & Hui, 2009, p. 25) and "indicates an assessment about the positive, personal, and social consequences of religious practice" (Leung & Bond, 2004, p. 119). Reward for application, on the other hand, is a view that "investment of human resources will lead to positive outcomes" (Bond et al., 2004, p. 2). In other words, it "indicates how strongly a person believes that challenges and difficulties will succumb to persistent inputs, such as relevant knowledge, exertion of effort, or careful planning" (Leung & Bond, 2004, p. 119). Lastly, fate control refers to the belief that life events are "predetermined and that there are some ways for people to influence these outcomes" (Leung et al., 2002, p. 29). This belief "indicates the degree to which important outcomes in life are believed to be fated, but are predictable and alterable" (Leung & Bond, 2004, p. 119).

As previously described, social axioms have been linked to a number of psychological outcomes, where the different dimensions of social axioms vary in the way they influence such outcomes. For instance, previous research have shown that individuals' adoption of certain social axioms is linked to a number of psychological outcomes such as trait hope (Bernardo, 2013) and life satisfaction (Lai et al., 2007).

In general, the results of these studies point to the significant association of specific social axioms on certain psychological outcomes. These studies also provide evidence that certain dimensions of social axioms maybe positively related to an outcome, while other dimensions are negative related. For example, in the study of Bernardo (2013), reward for application was positively associated with trait hope, whereas social cynicism was negatively associated with trait hope. In the study of Lai et al. (2007), higher social cynicism and social complexity beliefs were associated with lower levels of life satisfaction.

Social axioms have also been linked to psychological variables in the educational domain. For example, Bernardo (2004) tested the relationships of social axioms with achievement goals and found that social cynicism, religiosity, and fate control were all positively related to performance goals and work avoidance goals. In the same study, results also revealed that social cynicism was not related to any of the five learning strategies (rehearsal, elaboration, organization, critical thinking, metacognition), while the other social axioms were found to be positively related to at least two of the learning strategies. In another study (Liem, Hidayat, & Soemarno, 2009), it was shown that students who adopt religiosity and reward for application beliefs are more likely to have stronger perceived behavioral control on their intention to study. Moreover, students who tend to adopt fate control, reward for application, and religiosity beliefs are more likely to have stronger behavioral intentions to study, while those who tend to adopt social complexity beliefs are more likely to have lower behavioral intentions to study. In the study of David (2012), the association of the five social axiom dimensions with perceived academic control were examined. Results revealed that beliefs in reward for application and religiosity predicted perceived academic control, whereas the other three social axioms were not predictive of perceived academic control. Specifically, the results indicated that students with higher reward for application and religiosity beliefs tend to have higher perceived academic control. In general, these studies provided support to the notion that students' social axioms may have a role on their educational experiences.

Social Axioms and Academic Achievement

At the onset of the social axioms model, Leung et al. (2002) argued that reward for application could be related to academic performance. Indeed, it seems plausible that beliefs in reward for application may influence academic achievement as such beliefs can push a person to work hard and persevere toward the achievement of an outcome. This assumption is consistent with the argument that beliefs in reward for application is likely to be related to achievement behaviors in which efforts plays a significant role (Zhou, Leung, & Bond, 2009). However, academic achievement may also be related with other social axioms. In a very general sense, one may speculate that since social axioms are general beliefs that function to guide behavior, these beliefs influence outcomes, including achievement-related outcomes in the academic domain.

Nevertheless, empirical studies on the relation between academic achievement and reward for application or of the other dimensions of social axioms are relatively

scarce. In one study, Zhou et al. (2009) examined the predictive utility of reward for application and fate control beliefs with various achievement-related indexes in forty (40) gender-balanced cultural groups. The cultural groups comprised of both Western and Asian countries. Using societal-level data, findings revealed that reward for application was predictive of exertion of effort but was not predictive of academic achievement. In contrast, it was fate control which was found to be a positive predictor of academic achievement. While the findings on reward for application was surprising, the findings on fate control was not entirely unexpected given the duality of the nature of fate control which assumes that outcomes are fated but a person has the ability to control or influence this fate. However, it must be reiterated that the study of Zhou et al. was done using a culture- or country-level analysis. It is possible that the results on the association of social axioms and academic achievement would be different if the variables were tested on the individual-level. For instance, Zhou et al. reported that the culture-level correlation between reward for application and fate control in their study was much higher than the individual-level correlation between the two. It is then not unreasonable to argue that the association between social axioms and academic achievement may be different when examined on the individual-level. Moreover, the Philippines was not represented in the cultural sample used in the study of Zhou et al.. Since there are differences in the way countries value different types of student behavior and achievement (Bernardo, Zhang, & Callueng, 2002), there is a need to inquire into Filipino learner's achievement and how it relates with social axioms.

Leung, Chen, and Lam (2010), on the other hand, examined the individual-level effects of self-efficacy and social axioms on academic aspiration and academic achievement among a sample of secondary students in Hong Kong. Results show that reward for application positively predicted academic aspiration which in turn is a positive predictor of academic achievement. The findings suggest that people who believe on the positive consequences of investing effort in work are driven by such beliefs to experience stronger academic aspiration which in turn contributes to better academic achievement. On the other hand, fate control was negatively related to academic aspiration but had a positive direct effect on academic achievement. Overall, the study of Leung et al. (2010) provided evidence that certain dimensions of social axioms may have direct and indirect effect on students' academic achievement. Needless to say, more studies should be conducted to confirm the association of academic achievement with specific social axiom dimensions.

Given the results of the preliminary work on the association of social axioms and academic achievement, there is a need for more research that can provide additional empirical evidence on the association of social axioms with academic achievement. In this study, I explored the association of each of the five dimensions of social axioms with academic achievement among Filipino college students from the Philippines. It builds on previous research (Leung et al., 2010) by testing the link between social axioms and academic achievement in another Asian sample. The study of Leung et al. was limited to Chinese students from Hong Kong so it is not safe to assume that the results of their study would hold true when tested in another Asian sample such as with Filipino students in the Philippines. There is also reason to believe that Filipino learner's social axioms may have some distinction with the

social axioms of Chinese learners. While both Chinese and Filipino students tend to hold relatively strong beliefs in reward for application and social complexity and relatively weak beliefs in fate control and social cynicism, the Filipino samples in social axioms research reviewed in this paper (see Bernardo, 2004, 2009; David, 2012) seem to hold stronger fate control beliefs relative to social cynicism beliefs. On the other hand, the Chinese learners tend to hold stronger social cynicism beliefs relative to fate control beliefs (see Chen, Fok, Bond, & Matsumoto, 2006; Hui & Bond, 2010). While this variation may seem small, it is plausible that such distinction may lead to differences on how social axioms operate in each culture, including how social axioms relate with academic achievement. For instance, while the achievement goals of Filipino and Chinese students share similarities, Filipino students' adoption of mastery goals is associated with both individual- and social-oriented motivations (Bernardo, 2008) while Chinese students' adoption of mastery goals is associated with individual-oriented motivations only (Tao & Hong, 2000). This may imply that while Filipino learners share the same goals with their Chinese counterparts, the way it operates in their lives could be culture-specific. It is not unreasonable to think that social axioms may also work differently with Filipino learners compared with their Chinese counterparts. This is especially true as it has been suggested that culture may influence the way axioms operate in influencing psychological outcomes (Hui & Hui, 2009).

Moreover, the present study also explored the predictive influence of all five dimensions of social axioms on academic achievement. Previous studies (Leung et al., 2010; Zhou et al., 2009) were limited to examining the association of fate control and reward for application with academic achievement. While research on the role of the five social axiom dimensions on actual academic achievement is scarce, social axioms were examined in terms of their relations with other academic and learning-related variables (e.g. Bernardo, 2004; David, 2012). As discussed earlier, these findings point to the differential influence of the five social axiom dimensions on academic-related outcomes and seem to suggest that there are social axioms outside of fate control and reward for application that may have role in the academic or educational experiences of students.

Another reason for extending the investigation of the relation of social axioms with academic achievement among Filipino students is the cultural and educational environment of Filipino learners that is not typical of the Chinese learners used in previous research (e.g. Leung et al., 2010). For instance, the Philippines is said to have less rigid and structured testing systems compared with East Asian countries that are predominantly Chinese (Dela Rosa & Bernardo, 2013). Such difference may shape differential effects on Filipino students' achievement motivation and performance. In a cross-cultural qualitative study of students' approaches to learning (Liem, Nair, Bernardo, & Prasetya, 2008), Filipino students reported culture-specific themes in terms of their learning strategies. For example, Filipino students reported using collaborative learning as a learning strategy while students from Australia, Indonesia, and Singapore did not. The role of family in the educational and achievement experiences of Filipino learners is also salient as indicated in studies suggesting that Filipino students view learning as instrumental in the achievement of both their personal and family aspirations (Bernardo, Salanga, & Aguas, 2008) and that

filial piety is positively associated with the valuing of education among Filipino teacher education students (Magno, 2010). These studies highlight the Filipino value of close family ties and its strong influence on Filipino students' educational experiences. Taken together, the aforementioned studies seem to suggest a unique pattern of learning and achievement experiences among Filipino learners.

Overview of the Present Study

The aim of the present study was to examine the association between social axioms and academic achievement in a sample of Filipino college students. Specifically, I aimed to determine the predictive influence of each of the five dimensions of social axioms on Filipino students' academic achievement as measured by their final grade in mathematics. The present study focused on the subject mathematics because this subject is usually considered a challenging subject by many Filipino students. The difficulty and complexity of math subjects may provide an environment where students self-related beliefs may affect students' performance. Aside from the participants' social axioms, their task value and self-efficacy in mathematics were also assessed to control for the effects of these variables on academic achievement. Task value and self-efficacy are motivational constructs within the expectancy-value theory of achievement motivation (Wigfield & Eccles, 2000), which asserts that student's task-related behaviors can be explained by the extent to which students value their tasks and the extent to which students expect success in the accomplishment of these tasks. Previous research provide support on the positive association of task value and self-efficacy with academic achievement and other achievement-related outcomes (e.g. Lau, Liem, & Nie, 2008; Liem, Lau, & Nie, 2008). As the present study was meant to be exploratory, no specific hypothesis or prediction was made on the association of each of the social axiom dimensions with academic achievement. However, consistent with the results of previous research (Leung et al., 2010; Zhou et al., 2009), it was assumed that academic achievement would have its strongest association with beliefs in fate control.

Method

Participants

The participants in the study were 506 ($M = 101$; $F = 405$) first-year college students from a public university in Manila, Philippines. The participants' ages ranged from 14 to 28 years old (Age: $M = 16.47$; $SD = 1.39$). The participants were selected through convenience sampling and were attending an introductory math course during the time of the data gathering. Participants completed a survey questionnaire

containing measures for social axioms, task value, and self-efficacy during the second month of the semester. It must be noted that English is the medium of instruction used in the university to which the participants were sampled.

Measures

Social Axioms The 40-item short version of the revised Social Axioms Survey (SAS; Leung et al., 2012) was used to measure the participants' social axioms. The SAS consists of five subscales corresponding to the five dimensions of social axioms (8 items per subscale). The SAS uses a 5-point scale (1 = strongly disagree, 5 = strongly agree). The following instructions were given: "This part of the questionnaire contains items that pertain to social beliefs. There is no right or wrong answer. Please answer each item according to what you really believe." Sample items are: "Powerful people tend to exploit others" (social cynicism); "There is usually more than one good way to handle a situation" (social complexity); "Religion makes people happier" (religiosity); "Adversity can be overcome by effort" (reward for application); and "Fate determines a person's success in life" (fate control). An item each from the social complexity and fate control subscales, and two items from the religiosity subscales have very low item-total correlations and were excluded from subsequent analysis. These items are: "People with different opinions can all be correct" (social complexity; $r = .16$); "Religion slows down human progress" (religiosity; $r = .30$); "There is a supreme being controlling the universe" (religiosity; $r = .21$); and "There are certain ways for people to improve their destiny" (fate control; $r = .18$). The reliabilities of the SAS subscales were determined using Cronbach alpha and the results ranged from acceptable to good (social cynicism: $\alpha = .74$; social complexity: $\alpha = .72$; religiosity: $\alpha = .88$; reward for application: $\alpha = .75$; and fate control: $\alpha = .85$).

Task Value and Self-Efficacy The participants' task value and self-efficacy in mathematics was assessed using subscales from the Motivated Strategies and Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1993) that measure task value (6 items) and self-efficacy (5 items). Sample items are: "I am very interested in the content area of this course" (task value) and "I am certain I can master the skills being taught in this class" (self-efficacy). The reliabilities of the task value and self-efficacy scales were also determined using Cronbach alpha, and the results suggest that the two subscales have good reliability (task value: $\alpha = .84$; self-efficacy: $\alpha = .85$).

Academic Achievement The participants' final grades in mathematics were obtained from the university records with consent from the students. The students' final grades are reported in percentages with a score of 75 and above indicative of a passing grade.

Results

Confirmatory Factor Analysis

As the main variable of interest, the factorial structure of the SAS was first examined using confirmatory factor analysis (CFA) prior to the main analysis. Since the SAS has five subscales consisting of 6 to 8 items, item parcels were created to simplify the model. Four sets of parcels for each subscale representing the five dimensions of social axioms were created by using the random assignment method (Little, Cunningham, Shahar, & Widaman, 2002), where two or three items were randomly assigned to one parcel. These item parcels were used in subsequent analyses. CFA results indicated that all item parcels loaded on their respective latent factor (e.g. social cynicism). The factor loadings ranged from .64 to .92 and all were significant at the p < .001 level. The five-factor model of social axioms also achieved a good fit with the data: χ^2 (80, $N = 506$) = 167.359, $p < 0.001$; $\chi^2/df = 2.09$; CFI = .97, TLI = .96, RMSEA = 0.047.

Descriptive Statistics

To describe the Filipino students' level of social axioms, descriptive statistics were assessed. Comparing the values to the midpoint, the mean scores indicate that the Filipino students in the present study tend to hold relatively strong beliefs on reward for application ($M = 4.50$, $SD = .40$), social complexity ($M = 4.13$, $SD = .47$) and religiosity ($M = 4.11$, $SD = .69$), and relatively weak beliefs on social cynicism ($M = 2.75$, $SD = .63$) and fate control ($M = 2.96$, $SD = .78$). The correlations between dimensions of social axioms ranged from negligible to moderate (.01 to .53). Not all correlations were significant and on cases where the correlations are significant, the relations between dimensions of social axioms were on the positive direction, except for the association between social cynicism and reward for application which was on the negative direction.

Correlation and Hierarchical Regression Analysis

To examine the association between the five dimensions of social axioms and academic achievement, the bivariate correlations of the students' mean scores in each of the five dimensions of social axioms and their final grades in mathematics where first obtained. Using Pearson correlation analysis, bivariate correlations ranged from .00 to -.12. Only fate control ($r = -.12$; $p < .01$) was significantly related with academic achievement and the direction of the relationship was negative. No other

social axiom dimension was significantly related with students' academic achievement. In contrast, self-efficacy ($r=.28$; $p<.001$) and task value ($r=.29$; $p<.001$) were both positively related with academic achievement. Moreover, task value was positively related with all social axiom dimensions, except for social cynicism where it was negatively related. Self-efficacy, meanwhile, was not related with social cynicism and fate control, but was positively related with the other three social axiom dimensions. While some of the bivariate correlations were significant, the correlations of self-efficacy and task value with the five social axiom dimensions ranged from negligible to moderate (.04 to .22) indicating that multicollinearity may not be a problem in the data.

To determine if social axioms are predictive of perceived academic control, the results of the correlation analysis were further explored by conducting a hierarchical regression analysis. While the results of the correlation analysis indicated that only fate control was significantly correlated with academic achievement, all the five dimensions of social axioms were simultaneously included as predictors in the regression model to control for the shared variances that the social axioms may have. In Step 1 of the regression analysis, task value and self-efficacy were entered as predictors in the regression model. In Step 2, the five social axiom dimensions were added as predictors. These steps were performed to determine if the social axioms can predict academic achievement even when controlling for task value and self-efficacy.

At Step 1, when the control variables were entered in the regression equation, the overall regression model was significant although the total explained variance was small [F (2, 503)$=27.31$, p$<.001$, $R^2=.10$]. The regression analysis indicated that both task value [$\beta=.18$, t (503)$=3.33$, $p<.01$] and self-efficacy [$\beta=.16$, t (503)$=2.94$, $p<.01$] positively predicted academic achievement. At Step 2, when the five dimensions of social axioms were added in the regression model, analysis revealed that the overall regression model was significant and that there was increment in the total explained variance [F (7, 498)$=10.07$, p$<.001$, $R^2=.12$]. The change statistics ($\Delta R^2=.03$; p$<.05$) was significant suggesting that adding the social axioms as predictors in the model significantly increased the explained variance in Step 2. The analysis indicated that task value [$\beta=.22$, t (498)$=3.86$, $p<.001$] and self-efficacy [$\beta=.15$, t (498)$=2.81$, $p<.01$] remained as significant positive predictors of academic achievement. However, consistent with the results of the correlation analysis, the only dimension of social axioms that significantly predicted academic achievement was fate control [$\beta=-.15$, t (498)$=-3.22$, $p<.01$] and the direction of the effect was negative. The other four social axiom dimensions were not significant predictors of academic achievement as indicated by the following results: social cynicism [$\beta=-.00$, t (498)$=-.07$, $p=.95$]; social complexity [$\beta=-.02$, t (498)$=-.37$, $p=.71$]; religiosity [$\beta=-.00$, t (498)$=.01$, $p=.99$]; and reward for application [$\beta=.05$, t (498)$=.89$, $p=.38$]. It is worth noting that in the present study, the predictive effect of fate control on academic achievement was about as strong as the effect of self-efficacy.

Discussion

The purpose of the present study is to explore the association between the five social axiom dimensions and academic achievement. Before discussing the findings, it is important to be reminded that the present study has limitations so the findings should be interpreted with caution. First, the current study is correlational in nature so causality between the variables under study cannot be established, and neither should it be inferred from the findings. Second, the sample for the study was drawn from one university in Manila so there is a need to confirm or replicate the findings in future studies before one can make strong generalization from the findings. Third, academic achievement in the study was assessed in terms of students' final grades in one course. Future studies may want to examine students' academic achievement across a number of courses. Nevertheless, in spite of these limitations, the present study yielded interesting results that provide some preliminary evidence on the role of social axioms on the academic achievement of Filipino college students.

The first important finding from the present study pertains to the result that social axioms contribute significantly in explaining the variance in students' academic achievement beyond what task value and self-efficacy in mathematics explain. This supports the argument that even if social axioms are domain-general beliefs, they might also be important components of students' self-belief system that may contribute to academic success. However, the result that only fate control has a significant influence on students' academic achievement seems to suggest that beliefs in the influence of fate on life outcomes have more salient role in shaping students' academic outcomes compared with the other four social axiom dimensions examined in this study. Nevertheless, these results do not necessarily negate the possible contribution of other social beliefs on students' academic achievement. Perhaps, the other social axiom dimensions may also relate to academic achievement through the mediation of other psychological variables that are more proximal predictors of academic outcomes. For example, Leung et al (2010) were able to demonstrate that reward for application has no direct effect on academic achievement but academic aspiration mediates the association of reward for application with academic achievement. As described earlier, previous research also suggest that social axioms other than fate control are associated with academic-related variables like achievement goals (Bernardo, 2004), behavioral intention to study (Liem et al., 2009), and perceived academic control (David, 2012). Thus, the role of social axioms on students' academic achievement may not be limited with the influence of beliefs in fate control. Future studies should look into possible mediating mechanism that could further clarify how social axioms contribute to the academic success of students.

The second important finding refers to the negative predictive influence of fate control on academic achievement. It is possible that for the Filipino students in this study, their beliefs that fate influences life outcomes afford them to believe that academic outcomes (i.e. academic achievement) are also fated. While fate control also includes the belief that fate can be controlled, beliefs in the power of fate may give a student a sense of lack or absence of control. Such perception of lack of

control may then discourage a student to take a more active approach in studying or learning to achieve academic success. As a result, academic achievement is negatively affected. This particular result differs with the findings of Leung et al. (2010) that fate control has a direct positive effect on academic achievement. Notwithstanding the methodological differences between the two studies, it is plausible that cultural differences could be one reason why fate control was positively associated with academic achievement in the Hong Kong sample of Leung et al., and negatively associated in the Philippine sample of the present study. For instance, one may speculate that the Chinese students in the study of Leung et al. view fate as something that is malleable and controllable, which may give rise to a sense of personal agency. On the other hand, one may speculate that for the Filipino students in the present study, fate is viewed as a deterministic force that makes effort and persistence in life useless given that life outcomes are already predetermined, including academic outcomes. While these are mere speculations, the seemingly dualistic nature of fate control beliefs was confirmed with the findings that fate control has two components: fate determinism and fate alterability (Leung et al., 2012). Thus, beliefs in fate determinism could be the ones associated with negative outcomes (e.g. lower academic achievement), whereas beliefs in fate alterability could be the ones associated with positive outcomes (e.g. higher academic achievement). To address this possibility, future research may need to examine the effects of the two components of fate control on academic achievement separately.

Since social axioms are considered as culturally rooted beliefs (Bernardo, 2004), one may also explain the results of the present study based on culture-specific characteristics of Filipino learners. For instance, beliefs on fate control may be viewed as rooted in Filipinos' strong beliefs on fatalism, the "belief that all things are predetermined and are therefore inevitable" (Menguito & Teng-Calleja, 2010, p. 3). Since fatalism is characterized by passive acceptance of life events that may lead a person to lose the confidence and determination to take action to escape a predicament (Menguito & Teng-Calleja, 2010), the Filipino students who hold strong beliefs that life outcomes are controlled by fate may lose the confidence to manage or combat their difficulties and limitations in their learning environment (e.g. a student may no longer study for a difficult lesson). This may then translate to poorer classroom performance or lower academic achievement.

One may also argue that the Filipino learner's beliefs fate control is associated with Filipinos' strong religious beliefs and faith in God. If fate control is viewed within this context, then one may assume that Filipinos view fate as something that is designed by God or by some higher spiritual being. Since life outcomes are seen as consistent with God's will, strong beliefs on fate control may then make a person dependent to God which can lead to passive optimism (e.g. 'God will take care of it'). Among Filipino students, such reliance on God-controlled fate may lead to overconfidence and risky behaviors (e.g. a student not studying for an important exam) which could lead to poorer academic achievement.

Related to the points discussed in the preceding paragraphs, one may also explain the results of the present study in terms of beliefs in fate control being characterized by the lack or absence of self-determination. The self-determination theory (SDT)

of Ryan and Deci (2000a, 2000b) views motivation as a continuum from intrinsic motivation (higher self-determination) to amotivation (lower self-determination). Amotivation may occur when people perceive their behaviors as caused by forces beyond their own control (Cokley, 2000). Thus, when students believe that they have little or no control over their fate, they may experience amotivation (e.g. the student will not be motivated to prepare for a test) which may lead to lower academic achievement.

In summary, the present study examined the association of five social axiom dimensions with the academic achievement of Filipino college students. While the results indicated that only fate control seems to have predictive influence on the achievement of the Filipino students, there seems to be a need to further examine the role of all five social axiom dimensions on the academic outcomes of students. What is needed is a stronger theoretical articulation that can better explain the process of how social axioms influence academic achievement or through what mechanisms. Such theoretical embedding may provide a clearer and more definitive picture on the role of social axioms on students' academic outcomes. Since the present study is limited to assessing the direct influence of social axioms on academic achievement, future research must identify and test psychological constructs that may mediate the link between social axioms and academic achievement and other academic outcomes. Indeed, the arguments posited in the previous paragraphs to explain the negative association between fate control and academic achievement presuppose the possibility that mediators provide a link between fate control and academic achievement. For example, previous research (Bernardo, 2004) suggested that students with high fate control beliefs are less likely to try to work hard in school and less likely to use higher level learning strategies. Hence, one may test the hypothesis that fate control is negatively associated with academic achievement through the mediating effect of work avoidance goals or learning strategies. Moreover, future studies may need to take a full account of the socio-cultural factors that may influence the association between social axioms and academic achievement in Filipinos and other Asian learners. A cross-cultural analysis of Asian students' social axioms and how they relate with school achievement in similar and unique ways will greatly advanced our understanding of how social beliefs contribute to the educational experiences of Asian learners.

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Chapter 38
Understanding Chinese Students' Achievement Patterns: Perspectives from Social-Oriented Achievement Motivation

Vivienne Y.K. Tao

Abstract Many researchers raised the limitations of the applicability of motivational theories across cultures with the absolutist approach based on the individualistic perspective. This chapter gives a brief review of research adopting the relativist approach which is directed to universalist approach in studying motivational processes among Asian and Chinese students from the social-oriented perspective. Why would Asian Chinese and Chinese students on average show better academic performance but report more negative emotions and test anxiety than other ethnic groups and their Western counterparts? It is argued that the social-oriented achievement motivation (SOAM) model provides a theoretical framework in understanding and explaining the achievement patterns among Chinese students based on the meaning system approach. SOAM endorsement is linked to viewing academic achievement as an obligation to fulfill. The SOAM model depicts distinctive patterns of cognition (parental influences and achievement goals adoptions), affect (agitated emotions facing setbacks and test anxiety), behaviors (learning approaches and strategies, time and effort in studying), and academic outcomes (actual examination performance) in academic achievement settings among Chinese students (after controlling for individual-oriented achievement motivation, IOAM). The role of the SOAM system in broadening the understanding of basic human motivation (need for relatedness and autonomy) and learning motivation (intrinsic and extrinsic motivation) is also addressed and discussed.

Amy Chua's book entitled *Battle Hymn of the Tiger Mother* has aroused a heated debate of parenting in the USA. In her book, *Chua* (2011) insisted that the strict Chinese model of parenting is the key to explain the academic excellence and superiority of Chinese children:

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Chinese parents believe that their kids owe them everything… probably a combination of Confucian filial piety and the fact that parents have sacrificed and done so much for the children… Anyway, the understanding is that Chinese children must spend their lives repaying their parents by obeying them and making them proud… Chinese parents demand perfect grades because they believe that their child can get them. If their child doesn't get them, the Chinese parent assumes it's because the child didn't work hard enough. That's why the solution to substandard performance is always to excoriate, punish, and shame the child. The Chinese parent believes that their child will be strong enough to take the shaming and to improve from it. (pp. 59–60).

This parenting style is strikingly opposite to most classic achievement research which contends that individuals' interest in learning is best sustained by their intrinsic motivation. Many motivational theorists have linked human motivation to the individual's free choice and personal autonomy. That is, free choice leads to greater intrinsic (vs. extrinsic) motivation to fulfill one's autonomy needs, and thus resulting in positive affect and performance outcomes. Conversely, when free choice is constrained, intrinsic motivation and interest would be undermined and dampened, thereby resulting in negative affect and performance outcomes (Deci & Ryan, 1985; Lepper, 1981; McClelland, 1985). Are such conventional notions of the beneficial personal choice, intrinsic motivation, and autonomy universally true for other non-Western cultures? As Iyengar and Lepper (1999) showed that while Anglo-American students who conceive themselves independent were more motivated by personal choices than task chosen by significant others, Asian American students who conceive themselves interdependent were more motivated by choices made by a significant others than by themselves. Why might the Asian American be more motivated by their mothers' choice, an extrinsic factor presumably? Is it possible that Asian Americans, while construing the self as interdependent with significant others (Markus & Kitayama, 1991), might view meeting expectations placed on them by significant others as a more valuable endeavor than achieving a personal goal. In this context, Hernandez and Iyengar (2001) argued that people striving for collective agency are motivated to purse goals and activities sanctioned by the collective so as to fulfill their duties and obligations. Driven by the collective agency for the collective wellness, achievement is regarded as a social-oriented goal and endeavor. In academic settings, collective agency can be reflected in terms of parental influence on students and their willingness to change according to parental concerns and preferences.

Chinese Achievement Patterns

With the high parental expectation on Chinese students' achievement and their drive to fulfill such expectation as obligations, they are motivated to work harder to attain high performance outcomes. However, while Asian and Chinese students in general outperformed their American and non-Asian American counterpart, they reported lower perceived competence and higher dissatisfaction of results and higher test anxiety in academic settings (Eaton & Dembo, 1997; Harter, 1982; Lee, Uttal, &

Chen, 1995; Oishi & Sullivan, 2005; Stevenson & Stigler, 1992; Whang & Hancock, 1994). Such achievement patterns among Asian and Chinese seems paradoxical and incomprehensible in the individualist paradigm. Tao and Hong (2000) suggested students in different sociocultural contexts of different societies may have entirely different achievement meaning systems. Academic achievement is seen as an individual endeavor for goals driven by own inspirations and interests in the Western culture, whereas it is seen as a social endeavor for fulfilling obligation by demonstrating new skills publicly for social approval in the Chinese culture. Tao and Hong (2000, 2014) highlight the deficiencies of the individual perspective in explaining different achievement pattern across various cultures and propose the social-oriented achievement motivation (SOAM) model which could better explain Asian Chinese achievement pattern: Why would Asian Chinese students on average show better academic performance than other ethnic groups, but report more negative emotions and test anxiety?

Tao and Hong (2014) argued such a seemingly paradoxical achievement pattern is rooted in the endorsement of SOAM in viewing academic achievement as an obligation to fulfill. They proposed the SOAM model in depicting how SOAM is linked to distinctive patterns of cognition (achievement goals adoptions), affect (agitated emotions facing setbacks and test anxiety), behaviors (learning approaches and strategies, time, and effort in studying) in academic achievement settings. Findings across five studies among junior high school and senior high school and college students have systematically demonstrated that have SOAM (after statistically controlling for the contributions of IOAM) is linked to a constellation of cognitive, affective, and behavioral responses. Specifically, when students' values and beliefs are more influenced by their parents and are subjected to high parental expectations of academic achievement, they may value academic achievement as a way of satisfying those expectations. The pursuit of academic excellence then becomes a social and moral obligation. Consequently, these students often experience agitated emotions and test anxiety. To meet their parents' expectations, they are concerned about documenting academic excellence and thus value performance demonstration goals and the achieving approach to learning. Such students are then motivated to spend more time on and exert more effort in studying for examinations, and obtain better grades. In the following, definitions of the S/IOAM, achievement goals, and the concerned academic-related outcome of the to-be-explained Chinese academic achievement patterns are stated and discussed below.

Academic Achievement Is Moral Obligation

According to Tao and Hong (2000, 2014), academic achievement is viewed as a morally obligatory endeavor among Chinese students to repay parents' effort in raising them. Firstly, filial piety and achievement in education were most valued as attributes of an ideal child among Hong Kong Chinese parents (Shek & Chan, 1999). These parents see academic achievement as getting high grades, being

diligent and responsible in studying, and attaining high education level. Doing well in school is regarded as the primary obligation to fulfill expectation set by parents. Filial piety acts also as a highly valued virtuous and moral characteristic which is associated with academic achievement (Salili, 1994, 1995; Yu, 1974). How well students can meet these obligations is important in the children development (Stevenson & Stigler, 1992). Differing from the rights-based moral judgment on whether individual will do harms to others intentionally in Western culture, people rather tend to make moral judgment in terms of how well individuals fulfill the parental expectations or social obligations (duty-based moral judgment) in Chinese culture (Chiu, Dweck, Tong, & Fu, 1997). Secondly, according to Confucian teaching, studying hard with persistent effort is seen as an esteemed way meant to cultivate moral characters (Mizokawa & Ryckman, 1990). Similar to the incremental view of intelligence conceptually (Dweck 2000), all domains of oneself are malleable including ability (Chao, 1996; Chen & Uttal, 1988) in Confucian teaching. As such, discipline and persistence in students' study is valued highly (Bempechat & Drago-Severson, 1999). Chinese teachers and students adopt the view that ability can be acquired by spending more time and effort in study, lower achievers are blamed to not working hard enough and not responsible (Stevenson et al., 1990) Ineptitude has to be compensated by hard working attitude and action such as doing more assignments and taking extra classes (Hong, 2001).

Thirdly, according to attribution theory, achievement implies moral judgment when achievement outcomes are attributed to internal and controllable factors such as time and effort spent on study (Hamilton, Blumenfeld, Akoh, & Miura, 1990; Weiner, 1993, 1994). One's central will plays an essential role in morality, for instance working hard for examinations may show one's will is morally correct and appropriately oriented (Sabini & Monterosso, 2003). Particularly, failing in task is seen as immoral when failure is attributed to lack of effort which is subject to one's volitional adjustment. Also, one is considered as immoral as not being responsible enough to exert sufficient effort in tasks.

SOAM Versus IOAM

Yang and Yu (Yang, 1982; Yang & Yu, 1988; Yu, 1996; Yu & Yang, 1987, 1994) were pioneers in distinguishing the conceptions of Social-Oriented Achievement Motivation (SOAM) from Individual-Oriented Achievement Motivation (IOAM). They argued the rising need to distinguish these two distinct achievement orientations at an individual level that are reminiscent of the cultural differences between the West and the East. Accordingly, SOAM is defined as a motivational system to achieve honoring one's family and earn social approval with the following five characteristics: (a) significant others, social groups, or the society set the pursuit achievement goals and standards of excellence; (b) actions or means for pursuing goals and attaining standards are selected and determined by significant others, the group, or society; (c) performance and outcomes are evaluated by significant others, the

group, or society in terms of whether they match the goals and standards set by significant others, the group, or society; (d) reinforcement is given by significant others, the group, or society in terms of praise or condemnation, acceptance or rejection, promotion or demotion; (e) its motivational dynamics reflects strong social instrumentality and weak functional autonomy. On the contrary, IOAM is defined as a motivational system to achieve one's own aspirations with the following five distinct primary characteristics: (a) pursuit of achievement goals or standards of excellence are set by individuals; (b) actions and means of pursuing goals and attaining standards of excellence are selected and determined by individuals; (c) outcome evaluations are made in terms of whether they match the goals and standards set by individuals; (d) reinforcement is given by individuals based on the outcome evaluations done by individuals; (e) its motivational dynamics reflects strong self-instrumentality.

Tao and Hong (2000, 2014) employed an intracultural analysis to demonstrate different cultural meanings ascribed in East and West in relation to achievement can be unpacked and explained in terms of endorsement of SOAM and IOAM. They argued that focusing on one culture at a time on SOAM and its ramifications as SOAM is a system that is less explored in the past in comparison to IOAM. Like any cultural variables, there are individual differences in the endorsements of SOAM and IOAM within a culture. Cross-cultural difference may instead arise from the relative accessibilities of the SOAM or IOAM individuals in a culture based on the dynamic constructivist approach (Hong, 2009; Hong & Chiu, 2001; Hong, Morris, Chiu, & Benet-Martinez, 2000).

SOAM and Parental Influences

Liem and Nie (2008) examined the ten basic values across cultures in predicting achievement motivation orientations. Among all, only conformity which is defined as restraints of action and inclinations to upset or harm others and transgresses social expectation or norms was found positively associated with SOAM among both Chinese and Indonesians. However, self-direction value such as independent thought and actions was found negatively associated with SOAM. Although some recent research has started to explore the constructive effects of parental involvements in Western culture, research findings largely confirmed the cultural ideal that supportive autonomy (i.e., parents providing support and guidance for the students to make their own choices) is most beneficial (Pomerantz & Wang, 2009). Bernardo (2012) argued that detrimental impact of parental control is only restricted to when parental control is perceived to be illegitimate, whereas perceived legitimacy of parental control in academic participation was positively associated academic adjustment and less self-reported disruptive behavior. Moreover, perceived legitimacy of parental control on subject choice was found negatively with IOAM and positively with SOAM. Tao and Hong (2014) found that SOAM was positively associated with parental influences on students. They argued that the essence of

SOAM is rooted in parental influence on students. The more students are influenced by parents, the more they would wish to satisfy the goals and standards of excellence set by their parents, and the more they would feel obliged to fulfill their perceived social and filial obligations towards them through academic achievement.

SOAM and Achievement Goals

Zusho and Clayton (2011) reviewed the absolutist, relativist, and universalist approaches in studying achievement goals. They suggested that departing from the absolutist approach which relies only on mainstream assessments developed in the West with Western samples, researchers are advised to adopt the universalist approach by acknowledging the cultural impact and contextual influences on motivation with certain basic motivational processes. Relativists adopting the concept of SOAM and measuring this orientation with the local instrument developed with Chinese samples and validated with Asian samples including Hong Kong Chinese (Tao & Hong, 2000, 2014), mainland Chinese and Indonesians (Liem, Martin, Porter & Colmar, 2012; Liem & Nie, 2008; Nie & Liem, 2013), Filipino (Bernardo, 2010) and Singaporean (Chang & Wong, 2008; Chang, Wong & Teo, 2000; Chang, Wong, Teo, & Fam, 1997). Motivational processes are better comprehended under the contextual bases of motivation. Indigenous psychological studies are not necessarily relativism but strike to be in line with universalism. Motivational science studies should be directed towards universalism from relativism in advance motivational science in general and achievement goals in particular (Zusho & Clayton, 2011). Many studies borrowed the conceptions of SOAM and IOAM in studying motivational processes and achievement goals in particular (i.e., Liem, Martin, Porter, & Colmar, 2012; Nie & Liem, 2013; Tao & Hong, 2000, 2014). Findings of these studies consistently showed significant positive correlations between SOAM and IOAM among Chinese and Filipino students (Bernardo, 2010; Nie & Liem, 2013; Tao & Hong, 2000, 2014). This series of studies launch a good start in directing relativism to universalism approach by attempting to map indigenous study of SOAM with a mainstream theory of achievement goals. SOAM perspective provides a theoretical framework to advance motivational science research in different cultures (Chang & Wong, 2008; Liem et al., 2012; Liem & Nie, 2008; Nie & Liem, 2013; Tao & Hong, 2000, 2014).

Achievement goals theory has been the focus of the study of motivational process. Three independent goals posited are learning, performance demonstration, and performance avoidance goals based on trichotomous framework of achievement goal theory (Elliot & Harackiewicz, 1996). Learning goal emphasizes the development of competence and the attainment of task mastery, performance demonstration goal emphasizes the display of high performance and the attainment of competence relative to others, and the performance-avoidance goal emphasizes the avoidance of looking stupid and incompetent relative to others. Both learning and performance demonstration goals are viewed as approach-oriented because they involve regula-

tion in relation to potential positive outcomes. However, performance avoidance goals are viewed as avoidance-oriented because they involve regulation in relation to potential negative outcomes. In other words, learning goal is adopted by people who define competence using an absolute (or intrapersonal) standard, and aim to achieve success. The performance approach goal (e.g., performance demonstration goals) is the goal adopted by people who define competence using a normative standard, and aim to achieve success. The performance avoidance goal is the goal adopted by people who define competence using a normative standard, and aim to avoid failure. As endorsing SOAM motivates students to gain social approval from significant others, thus students may endorse goals aiming to demonstrate one can excel in academic performance and avoid failure in it. Findings across various studies displayed that SOAM promotes performance demonstration (approach) and avoidance goals, whereas IOAM promotes learning goals (mastery goals) only (Tao & Hong, 2000, 2014).

SOAM and Agitated Emotions

According to the self-discrepancy theory by Higgins (1997), a mismatch between one's actual self (i.e., characteristics of the self in reality) and ought self (i.e., characteristics of the self that significant others think one should attain) may produce agitated emotions, including anxiety, shame, and guilt. In line with the argument, when academic achievement is seen as a moral obligation, failing in achievement tasks and not living up the achievement standards set by significant others should evoke obligatory related outcomes. Students endorsing SOAM experience actual-ought self-discrepancy encountering academic setbacks and thus experience agitation emotions and high test anxiety in general. To avoid feeling agitated, students in high SOAM are more motivated to spend greater effort resulting in better examination performance. SOAM was found positively associated with agitated emotions and test anxiety after perceiving failure in a task but not non-agitation emotions (Tao & Hong, 2014).

SOAM and Learning Approaches

Three types of learning approaches are defined by Biggs (1992) concerning how students typically manage academic related tasks. Each approach is a combined motive and strategy adopted by students to learn. (a) deep approach – motive and strategy for satisfying intellectual inquiry by maximizing the integration and understanding of knowledge through wide reading, discussion, and reflection on subjects; (b) achieving approach – motive and strategy for doing well and competing for higher grades in examinations by optimizing the organization of time and effort in preparing for examinations; and (c) surface approach – motive and strategy for avoiding failure without working too hard by focusing on selected details and

reproducing correctly. Tao and Hong (2014) showed that SOAM endorsement is positively associated with the adoption of the surface and achieving approaches to learning. By contrast, IOAM endorsement is positively associated with the adoption of deep approach to learning.

SOAM, Effort Expenditure, and Examination Performance

Despite the fact that SOAM is found associated with feeling of failure in tasks in face of setbacks (Tao & Hong, 2014), failure in Asian cultures can be motivating with self-improving orientation accompanied with persistence as depicted in Heine and his colleagues' study (Heine et al., 2001). In their study, Japanese who experienced failure tended to persevere longer with corrective effort than those who succeeded. More generally, Asian-American students were found to attribute positive and negative achievement outcomes more to effort invested than was the case with Euro-American students (Mizokawa & Ryckman, 1990). Thus, SOAM may lead to high effort expenditure in various academic settings.

Performance demonstration goals are repeatedly found associated with actual examination performance, but are unrelated to interest in class (e.g., Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, Tauer, & Elliot, 2002). By contrast, learning goals are positively related to interest in class, but are unrelated to students' actual performance in examinations. To the extent that SOAM is positively linked to endorsement of performance demonstration goals, SOAM endorsement exerts an indirect effect on actual examination performance in school. Specifically, SOAM endorsement fosters a motive to show high performance in examinations, and therefore motivate students to spend time and effort in studying, which in turn lead to better actual academic performance (Tao & Hong, 2014).

Generally, SOAM and IOAM displayed two distinctive constellations of achievement patterns as observed in Asian Chinese and Western cultures (Tao & Hong, 2014). In general, SOAM is associated with performance (demonstration and avoidance goals), agitated emotions, test anxiety, achieving and surface approaches, effort in studying, and actual examination performance. IOAM is associated with learning goals and deep approaches. These two differential achievement patterns obtained in the studies closely correspond to achievement patterns already identified among Chinese and American students. To study motivational processes by including SOAM in addition to IOAM can better understand and explain Chinese academic achievement patterns.

SOAM, Autonomy, Relatedness, and Parental Influences

Are the three fundamental human needs namely autonomy (to feel one's activities are self-selected and self-endorsed), competence (to feel effective in these activities), and relatedness (to feel a sense of closeness with others) based on the

self-determination theory of motivation (Deci & Ryan, 1985; Ryan & Deci, 2000) universally true across cultures? Is autonomy a universal need across cultures? When students value expectation of significant others and desire to fulfill them as obligation, endorsing SOAM can be a personal choice as reflected in variations in SOAM endorsement among students. When East Asians with the interdependent self-construal (Markus & Kitayama, 1991) value relatedness and interdependence, they grant influences of significant others on themselves so as to be more influenced by parents (Tao & Hong, 2014). For Asians, the self is defined by one's social roles and obligations, internalizing expectations of significant others fulfill the basic need to be socio-emotionally close and related to significant others. As such, expectations and wishes of significant others may not be viewed as incompatible with individuals' one. As shown by Bao and Lam (2008), Hong Kong Chinese students who were social-emotionally close to their mothers were found similarly motivated to perform on task which was either chosen by themselves or by their mothers. However, for those who are not socio-emotionally close to their mothers, they are less motivated by their mother choice than their own choice. It further suggested that personal autonomy is not valued as much as relatedness among Chinese students. In other words, individuals can exercise their autonomy via relating to their significant other by granting the influences of significant others on them. In line with the argument by Bernardo (2010), when students perceive parental control as legitimate, it leads to positive adjustment and outcomes. Moreover, he found that perceived legitimacy of parental control on subject choice was positive with SOAM but negative with IOAM. Therefore, endorsing SOAM implies one to perceive parental influences or control as legitimate and grant the parents the rights to direct their goals and to invoke personal agency to meet the expectations. Parental control in Asian cultural norms reflects love. The primary parental duty is to "guan" (closely monitor and govern) children (Chao, 1994). From children perspective, they feel obliged to obey parents' wishes under the social norms of filial piety (Yeh & Bedford, 2003). Arguably, children from an Asian culture valuing relatedness would resist less to the parental control and sanction their parent the rights to influence them, which is manifested in SOAM endorsement.

Is SOAM an Extrinsic Motivation?

As Tao and Hong (2014) discussed, SOAM may seem instrumental and maladaptive in learning as it is associated with negative emotions (i.e., guilt, shame, anxiety and test anxiety) in academic settings. However, given the positive correlation between SOAM and IOAM across various studies among Chinese students, extrinsic motivation like SOAM can somehow coexist with IOAM, the intrinsic motivation. Intrinsic and extrinsic motivations systems are believed to be incompatible with one another in the Western culture. In Asian culture, Chinese and East Asian students can endorse both SOAM and IOAM with extrinsic and intrinsic goals, respectively, to meet parental expectation and obligation by attaining good academic results with performance approach goals and acquiring new skills with leaning goals at the same

time. Consistently, Lepper and Henderlong (2000) found a positive correlation between intrinsic and extrinsic motivations among Asian American students, but a negative one among their Caucasian counterparts. They raised the need to study motivational system without being confined with traditional focus on "intrinsic" and "extrinsic" motivations. Extrinsic motivation can simultaneously initiate intrinsic motivation by motivating one in engagement of interest-enhancing activities (Sansone & Smith, 2000). External goals imposed on students by parents can be incorporated into students' own internal goals through the process of internalization (Hamilton et al., 1990; Hui, Sun, Chow, & Chu, 2011; Lepper, 1983). This argument is further evidenced by findings (Tao & Hong, 2014) which showed that parental expectations can be internalized into students' own intrinsic motivation, as manifested in displaying that SOAM exerts indirect effect on learning goals and deep approach to learning with IOAM acting as the partial mediator. Importantly, SOAM still exerts significant direct effect on learning goals, fostering intrinsic learning even after statistically controlling for IOAM.

In sum, SOAM does not necessarily undermine one's intrinsic motivation but can lead to high intrinsic motivation in terms of IOAM endorsement. Endorsing both high SOAM and high IOAM can be optimally motivating in terms of endorsing multiple approach goals (performance and learning approach goals) and approaches to learnings (i.e., achieving and deep approaches), thus resulting in higher effort expenditure and better examination performance at the cost of higher test anxiety and agitated emotions in face of setbacks.

Future Directions

SOAM research is so far limited to Chinese and East Asian samples. In-depth understanding of the role of SOAM as the key cultural ingredient requires systematic investigation across multiple studies and different cultures. As SOAM has been studied only with Chinese and East Asian students, future research can focus on testing whether similar patterns can be replicated in the West (Tao & Hong, 2014). Presumably, Westerners who endorse SOAM should have showed similar pattern of cognitive, affective, and behavioral responses as do East Asian students. However, given the cultural differences such as the self-construal (independent self vs. interdependent), would SOAM and IOAM still be closely correlated and can coexist in the Western culture? Future studies can adopt the experimental design in examining the priming effect of SOAM (vs. IOAM) on subsequent academic-related outcomes, for instance perceiving setbacks as failure and feeling of agitation based on the dynamic constructivist approach (Hong, Chiu, & Kung, 1997; Hong, Morris, Chiu, & Benet-Martinez, 2000). In other words, people who acquire shared knowledge of two culturally different achievement orientations (i.e., S/IOAM) can be activated temporarily to use one of these two orientation tool kits resulting in different academic experiences.

The relationship of SOAM with performance demonstration and avoidance goals can be further differentiated by identifying the mediating or moderating factors such as supporting versus controlling parenting involvement (Nie & Liem, 2013), self-efficacy, and academic competence. Aside from this mainstream achievement goals theory (mastery vs. performance and approach vs. avoidance), the interplay of SOAM and different specific types of social goals, namely social affiliation, approval, concern, responsibility, and status (King, McInerney, & Watkins, 2012) in relating different achievement outcomes in the classroom settings can be the focus of future research.

The effect of age on SOAM and IOAM stems can be further investigated. As findings in Tao and Hong study (2014) showed, endorsing SOAM was positively linked to adopting learning goals and deep learning approaches which is presumably linked with IOAM among high student schools, suggesting that students may have internalized learning from parents' expectations. However, when participants were college students, such positive links between SOAM and learning goals and deep learning approaches disappeared. These findings may suggest internalization of SOAM into IOAM – related outcomes no longer exist in emerging adulthood.

To conclude, SOAM sheds lights on unpacking the paradoxical phenomenon observed among East Asian students on achievement and broadening the understanding of issues of basic human motivation (need for relatedness and autonomy) and learning motivation (intrinsic and extrinsic) in a substantial way.

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Chapter 39
Early Learning Experiences of Young Chinese Learners in Hong Kong: The Role of Traditional Values and Changing Educational Policy

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Abstract In recent years, the Government of the Hong Kong SAR has allocated considerably more attention and resources to pre-primary education. This chapter considers how these changes at the policy and pedagogy levels are shaping the learning experiences of young children in Hong Kong. It will focus on the impact of the following four broad policy changes initiated in the last decade: the implementation of the Guide to the Pre-primary curriculum; the adoption of the biliterate and trilingual language policy; the enactment of a new quality assurance process; and the introduction of the Pre-primary Education Voucher Scheme (PEVS). It was assumed that the implementation of these policies would enhance the preschool and home learning experiences of young children. However, after one decade of implementation of these measures, studies have shown that: (1) preschool teachers still encounter difficulties in implementing child-centred teaching approaches and are likely to continue to adopt teacher-directed instruction or product-oriented pedagogy; (2) there are problems associated with the implementation of the trilingual language policy; (3) there are still wide variations in preschool quality despite the new quality assurance processes; and (4) the PEVS has resulted in some middle-families using the extra disposable income to enrol their children in additional academic classes rather than more play-based extra-curricular activities. Against the background of these research findings, this chapter argues that the changing role of the State, teacher characteristics and traditional Chinese beliefs should be adequately considered for an understanding of the early learning experiences of young Chinese learners in Hong Kong. Preschool education in Hong Kong has not necessarily become more child-centred as teachers have difficulties implementing developmentally appropriate teaching. On the other hand, the government has allocated

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more resources in enhancing the quality of early childhood education through supporting professional development of teachers. In terms of home-based learning, the influence of traditional Chinese beliefs about academic achievement is predominant and parents continue to prioritize academic learning. Thus Chinese parental beliefs and practices moderate the efforts of the state to promote holistic early development and learning.

Hong Kong has been characterized as a society which is a blend of eastern and western cultures because over 90 % of its population is Chinese and its colonial past. Traditional Confucian values continue to influence child-rearing practices at home and pedagogical strategies in school. This chapter focuses on the examination of the early learning experiences of preschool children in Hong Kong and considers how these experiences have been shaped by both traditional Chinese values and the changing educational context. It begins by considering traditional Chinese values that impact on cognitive socialization. Next, it deliberates on how changes in educational policy are reflected in the preschool classroom by focusing on following four broad policy changes initiated in the last decade: the implementation of the Guide to the Pre-primary Curriculum; the adoption of the biliterate and trilingual language policy; the enactment of a new quality assurance process; and the introduction of the Pre-primary Education Voucher Scheme (PEVS).

Traditional Chinese Values

Numerous books and articles have examined the influences of traditional Chinese values on the learning experiences of Chinese learners and on their teachers (Rao & Chan, 2009; Watkins & Biggs, 1996, 2001). The term "Chinese Learner" was first used by Watkins and Biggs (1996) to refer to students in Confucian-heritage cultures (CHC) who are influenced by Confucian values. These include an emphasis on academic achievement, the exertion of effort, and engaging in education as means for self-improvement and moral development (Lee, 1996; Rao & Chan, 2009). Teachers in CHC also emphasize memorization, practice and obedience (Ng & Sun, 2015).

Academic success is highly valued in CHC as education is considered the means to upward social mobility. These societies also emphasize effort in learning. Success is thought to follow the exertion of effort and limited emphasis is given to innate differences in ability. On the other hand, failure is ascribed to lack of effort rather than being influenced by differences in aptitude.

Memorization is emphasized in learning and is considered a precursor to understanding (Biggs, 1996; Watkins & Biggs, 2001). The drill-and-practice approach is commonly adopted by both families and schools to aid memorization. For example,

Chinese parents encourage young children to memorize poems and multiplication tables to better prepare them for primary school learning. Teachers also use drill-and-practice approaches and pencil-and-paper tests in the teaching of early literacy and numeracy although interactive teaching methods are recommended (Li & Rao, 2005; Ng, 2014, Pearson & Rao, 2006). Furthermore, preschool children have to complete assignments, such as copying characters and arithmetic exercises after school.

There is also an emphasis on order, stability, hierarchy, self-discipline and obedience in CHC. Children are required to regulate their behaviours and to show behavioural conformity both at home and in school (Ho, 1994; Rao, Sun, & Zhang, 2014). For example, Chinese mothers use a higher level of directiveness and more physical coercion than American mothers and usually expect their children to be modest, shy, sensitive, cooperative and to take responsibility for their actions (Wu et al., 2002). In the classroom context, teachers are expected to be more knowledgeable than students and are held responsible for imparting knowledge (Ho, 1994). As such, the traditional teaching approach is teacher-directive and focuses on the transmission of "correct" knowledge (Rao, Cheng, & Narain, 2003). In the traditional Chinese classrooms, teachers are therefore the absolute authority and students have to obey teachers' instructions. This may explain why Chinese students are always characterized as diligent and obedient in comparative studies (Cheng, 1996).

Changes in Early Education Policy in Hong Kong

Pre-primary education is run by both profit and non-profit organizations in Hong Kong and it is not compulsory. However, preschool attendance is almost universal.[1] Early childhood education entered a very positive era in Hong Kong after the change of sovereignty from Britain to China in 1997. Since that time, the government has launched several policy initiatives in order to enhance the quality of pre-primary education (Ng, Sun, Lau & Rao, in press; Rao, 2010). It was assumed that the implementation of these policies would enhance the preschool and home learning experiences of young children. In the following sections, we focus on four major policy initiatives: (1) the implementation of the Guide to the Pre-primary Curriculum; (2) the adoption of the biliterate and trilingual language policy; (3) the enactment of a new quality assurance process; and (4) the introduction of the Pre-Primary Education Voucher Scheme (PEVS) and consider how these policies are influencing the learning experiences of young children in Hong Kong.

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[1] According to the 2011 Population Census, 91.3 % of children aged from 3 to 5 attended preschool programs in Hong Kong (Hong Kong Government, 2012).

The Implementation of the Guide to the Pre-primary Curriculum

The Hong Kong Government issued the most recent version of the *Guide to the Pre-primary Curriculum* in 2006 (Curriculum Development Council, 2006). This *Guide* provides a curriculum framework focused on whole-person development and life-long learning for children ranging in age from 2 to 6 years. The *Guide* recommends that the curriculum in pre-primary institutions be child-centred, address children's holistic development and promote children's knowledge, skills and attitudes in a variety of different areas (Curriculum Development Council, 2006). All pre-primary institutes are encouraged to adopt the recommendations set out in the *Guide*. According to the *Guide*, it is assumed that the pre-primary curriculum would have a natural continuity to the primary curriculum as no pre-requisite academic knowledge was expected for children on their admission to Primary 1 (Education Department, 1993). According to the *Guide*, pre-primary educators should develop learning objectives and plan the curriculum based on children's needs. For teachers' reference, the *Guide* recommends: "[T]eachers are advised to make flexible use of the information and draw relevant verification in light of their everyday observations, in order to provide appropriate and sufficient opportunities for children's development… it is not necessary to set out specific performance indicators for each age level" (Curriculum Development Council, 2006, p. 11).

In terms of assessment of children's learning, the *Guide* states that examinations, be they oral or written, are not appropriate for preschool children as such forms of assessment place unnecessary pressure on them (Curriculum Development Council, 2006, p. 60). Multiple assessment modes are therefore recommended. In particular, it is suggested that the assessment of children's learning should be conducted in an authentic learning environment; based on observations and recordings. Teachers are expected to objectively evaluate children's performance with appropriately selected assessment tools, such as behaviour checklists, anecdotal records, and brief records of conversations with children. It is also recommended that multiple sources of data from teachers, parents, and children are necessary in order to assess young children's learning.

Although the *Guide* advocates a child-oriented and holistic development approach to teaching and learning, there are problems associated with implementation of its recommendations. The *Guide* only provides general directions for curriculum development, and kindergartens are expected to develop their own curriculum. This is problematic given the relatively lower levels of academic and professional qualifications of preschool teachers[2] and the tendency to replicate the way they themselves were taught as students. Hence, many principals and teachers

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[2] It was not necessary for preschool teachers to receive teacher training in the past. In 1998, for example, 32 % of preschool teachers had no teacher training qualifications (Rao & Koong, 2000). It was not until 2012 that all preschool teachers were required to possess a Certificate in Early Childhood Education, and all preschool principals were required to possess a degree in early childhood education or equivalent (Education Bureau, 2014b).

actually design the teaching content and classroom activities based on learning packages provided by local publishers (Li, 2006; Ng, 2013; Ng, 2014). Some teachers feel that they do not have the professional training and expertise to develop their school-based curriculum without extra guidance and assistance (Li, 2006). As a result, Ng (2013) found that preschool English curriculum became text-book led and was adopting product-oriented pedagogy, which indicated a teacher-dominated strategy with a major focus on the drilling of language items. Similarly, teachers plan their mathematics curriculum with reference to both the *Guide* and commercial learning packages. Although teachers claimed that they were designing age-related activities for their children, they were at the same time preparing children in advance to adapt more readily to the primary mathematics curriculum by drilling children and using pencil-and-paper tests (Ng, 2014). In fact, teachers are struggling to balance between their traditional understandings about teaching/learning and the newly introduced western ideologies introduced in continuing professional development courses and those promulgated by the educational reforms. Therefore, both consistencies and inconsistencies between teachers' beliefs and practices exist (Ng & Rao, 2008).

Apart from the issues related to teachers' competence and beliefs in curriculum design, pressure from parents might be another reason for the adoption of an academically focused curriculum. Historically, due to the limited primary school places offered in the 1950s, children had to pass a qualifying examination to secure admission to primary school. Therefore, parents expected preschools to better prepare children for taking the examination (Rao & Koong, 2000) and preschools had to provide related training for the young children to meet parents' requirements. Although formal examinations for primary school admission have long been prohibited, it is still difficult for children to obtain a place in popular primary schools. Parents want their children to get into good primary schools which they hope will help them, in turn, to get into elite secondary schools and universities. As a result, against the background of traditional Chinese cultural beliefs that emphasise academic success, parents expect an academically-focused curriculum and do not protest against the adoption of a drill-and-practice approach towards learning in preschools. Such expectations from parents might prevent pre-primary teachers from fully implementing child-centred, play-based curriculum in class, since it is at odds with parents' demands. In mathematics learning, for example, Ng (2014) found that both teachers and parents play an active role in promoting academic success. Parents teach their children mathematics at home and prefer an academically oriented curriculum that "over" prepares their children for their primary school studies. Therefore, although the underpinning philosophy of preschool curriculum planning in Hong Kong might be similar to some preschools in other parts of the world, such as the adoption of integrated curriculum and unstructured play, contradictory practice might also be manifest because of the cultural beliefs and values (Ng, 2014).

It should be noted that the *Guide* also emphasizes that the teachers' role is to help preschooler children construct knowledge and not to merely transmit knowledge to children. Further, it is recommended that teachers help students acquire appropriate

learning-related skills and attitudes. Classroom observations (Chen & Rao, 2011; Ng & Rao, 2008) also suggest that traditional Chinese values are evident and teachers emphasise discipline, diligence and obedience. In addition, the predominance of large group teaching in preschools also contributes to the early development of the learning-related skills in preschoolers in Hong Kong, such as persistence, attentiveness, behavioural and emotional regulation (Rao et al., 2014).

The Adoption of Biliterate and Trilingual Language Policy

Under the Basic Law and the Official Language Ordinance, the Hong Kong Government adopted a "biliterate and trilingual policy". Competence is expected in two written languages (Modern Standard Chinese and English) and three spoken languages (Cantonese, Putonghua and English) (Poon, 2004). In learning the mother tongue (Cantonese), Putonghua and English, the *Guide* recommends that teachers provide children developmentally and individually appropriate integrated learning experiences in meaningful language learning contexts (Curriculum Development Council, 2006).

Leung, Lim, and Li (2013) found that preschool teachers welcomed and adopted the biliterate and trilingual language directive but they acknowledged difficulties in implementing the policy. Ng (2011) found that the teaching of English to 5-year-olds was widespread and there were many cases of teaching English to 3-year-olds although relatively limited time was allocated for it. Ng further pointed out that the amount and type of English teaching was driven by parental demands and expectations as all preschools are privately run. The recommendations in the *Guide* for English language do not acknowledge the amount of English teaching that actually occurs in kindergartens and therefore not detailed enough. As a result, English teaching is text-book based. Further, teachers' priority should be given to both listening and speaking in English teaching whereas most parents emphasised reading and writing in English. The differences in the views of English teachers and parents have influenced instructional practices. Teachers emphasise reading and writing to meet parents' expectations and a product-oriented pedagogy is prevalent. The learning of English vocabulary through repeating drilling or copying is evident. Furthermore, there is typically minimal support for English language learning at home and parents expect preschools to take full responsibility for enhancing children's English language proficiency. This further reinforces the adoption of a product-oriented pedagogy in preschools. Such an approach which focuses on the outcomes of children's learning and not on the process of learning and might adversely influence children's engagement and interest in language learning.

Chinese children in Hong Kong show better performance in Chinese literacy than children in other Chinese speaking areas including Beijing and Shenzhen (Li, Corrie, & Wong, 2008; Li & Rao, 2005; Li, Rao, & Tse, 2011). This difference is a function of varying educational policy guidelines and differences in Chinese literacy teaching at the pre-primary level. In Hong Kong, although the *Guide* explicitly

states that we should not expect 3-year-olds to write (Curriculum Development Council, 2006, p. 95) and recommends that young children should not be over-burdened with academic pressure, Chinese literacy is formally taught in preschools. Whole class direct instruction is the predominant Chinese pedagogical mode in Hong Kong preschools (Li & Rao, 2005; Li, Rao, & Tse, 2012). As in the case of English, literacy is stressed. It is common for preschoolers to be asked to copy single Chinese characters or simple sentences. In contrast, the formal teaching of reading and writing Chinese characters is strictly prohibited in mainland China. As a result, children from mainland China normally have informal learning experiences involving Chinese literacy in kindergarten and they usually learn to recognize Chinese characters from parents. Such experiences in formal Chinese literacy learning in Hong Kong are crucial in understanding their excellent performance in early literacy tests since the complicated nature of Chinese orthography may make early instruction particularly valuable in Chinese literacy acquisition (Li et al., 2008).

Parents in Hong Kong were also found to be highly involved in teaching Chinese characters to their children by naming, explaining and defining them (Li & Rao, 2000) and parental help and involvement were found to have long-term beneficial effects on children's Chinese literacy development (Li et al., 2008). The valuing of formal teaching and learning in Chinese societies has provided Hong Kong children a continuous and cohesive set of formal teaching experiences at home, preschool and school from a very early age. It is necessary to note, however, these practices in preschools do not totally align with the recommendations set out in the official pre-primary curriculum *Guide* in Hong Kong.

The Enactment of a New Quality Assurance Process

Before the introduction of the Quality Assurance framework in 2000, the government issued a curriculum guide and monitored school quality through regular inspections (Chan & Chan, 2003). A new Quality Assurance framework that emphasized School Self-evaluation (SSE) was introduced in Hong Kong preschools in 2000 (Education Bureau, 2012). According to the SSE process, each preschool has to conduct a holistic review of its current state of performance and its effectiveness relevant to pre-determined Performance Indicators. After analysing the findings from the self-evaluation, the school has to compile a school report including an annual development plan for the next school year. It is expected that preschools will benefit from such improvement measures (Education Bureau, 2014c). SSE is complemented by external school review to support continuous improvement in the quality of preschools. Another important measure for the new quality assurance process was the issue and revision of the Performance Indicators for Pre-primary Education in 2000 and 2003, respectively. The Performance Indicators for Pre-primary Education provide a common metric to monitor service standards. In addition, all preschools which joined the PEVS from the 2007/2008 school year are required to undergo a Quality Review, which provides the basis for ascertaining

their eligibility for the Voucher Scheme and future voucher redemption. Reports on quality assurance inspection conducted after 2000 are available on the government's website to enhance transparency and to allow parents to make an informed choice when they select preschools for their children.

It is expected that the above mentioned actions will significantly improve the quality of preschools in Hong Kong. However, there is still a long way to go to achieve satisfactory performance. The inspection report in 2004 showed that most preschools had carried out reforms by introducing new teaching approaches, but at the same time they still emphasized writing, memorizing books and dictation (Education Bureau, 2004). In the 2006–2007 report,[3] 40 % of the preschools were considered unsatisfactory in terms of adopting child-centred teaching approaches. Some preschools still relied heavily on traditional teacher-directed modes of teaching and practice in reading, writing and calculation teaching (Education Bureau, 2007). Studies have further found that there were still wide variations in preschool quality despite the new quality assurance processes (Chan & Rao, 2013).

An essential component of "quality" as recommended in the *Guide* is to implement a child-oriented approach to facilitate children's holistic development in preschools. However, this notion is at odds with the traditional Chinese values that emphasize teacher-directed instruction, memorization and repeated practice to facilitate learning. It is difficult for the teachers to completely abandon traditional teaching practices and to adopt the newly recommended pedagogy in such a short time. Nevertheless, the Government's measures to promote quality in pre-primary education have already shaped the learning experiences of children in Hong Kong. Teachers and parents have started to learn about the importance of implementing child-centred activities in the early years, though they might, at the same time, hold traditional Chinese beliefs towards teaching and learning.

The Introduction of the Pre-primary Education Voucher Scheme (PEVS)

The Hong Kong Government has been investing heavily in education to ensure that no student is deprived of education for lack of financial means (Hong Kong Government, 2010). However, pre-primary education is excluded from the main education system because unlike primary and secondary education, it is not under the government subsidized scheme.[4] Pre-primary services are still run by private or

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[3] The 2006–2007 annual report is the latest report published on-line as at 2014.

[4] Primary and secondary schools in Hong Kong are either run by the government or are receiving subsidized from the government (aided or subsidized schools). In addition, the Direct Subsidy Scheme (DSS) introduced in 1991 aims to develop a strong private school sector by providing high quality schools other than government and aided schools so that parents have greater choice in finding suitable schools for their children. Non-government aided secondary and primary schools which have attained a sufficiently high educational standard to join the DSS by providing subsidies

voluntary organizations (Hong Kong Government, 2010) although there is a fee remission scheme provided to children from needy families.

In 2006, the Hong Kong government announced a major financial commitment to strengthen the quality of pre-primary education through the introduction of the Pre-primary Education Voucher Scheme (PEVS). The key objective of the PEVS is for all preschool children to receive affordable and quality pre-primary education (Education Commission, 2010). This is to be achieved through direct fee subsidy to parents, in the form of vouchers, to ease their financial burden and enhance their choice of preschools. The scheme also provides financial assistance to preschool teachers and principals for their professional upgrading. Preschools have to pass the quality review to maintain their eligibility of being included in the PEVS. By the school year of 2009–2010, 84 % of the preschools joined the PEVS and 85 % of the preschool children received fee subsidy under the PEVS (Education Commission, 2010).

How does the PEVS enhance children's learning? On the positive side, studies have revealed that the scheme has enhanced affordability, accessibility and account-ability of preschools (Li, Wong, & Wang, 2010). All preschools under the PEVS are subject to a regulatory framework governed by the Education Ordinance (structural standards), the Guide to the Pre-primary Curriculum (curriculum requirements) and the Quality Review mechanism (quality assurance procedures) (Education Commission, 2010). Further, parents have additional money to support their children's early learning (Li et al., 2010; Yuen, 2010; Yuen & Yu, 2012).

On the other hand, there are also questions as to whether the PEVS has achieved its intended goals for preschool education in Hong Kong (Fung & Lam, 2009). One of the key aims of the PEVS is to enhance preschool teachers' professional training, which is critical to the delivery of quality education. Yuen and Grieshaber (2009) pointed out that the PEVS has still kept early childhood teachers in a position infe-rior to that of their counterparts in primary schools since teaching at the pre-primary level is considered as less intellectually challenging, and a university degree is not needed. The inferior status is critical as such ambiguous image of preschool teachers and teaching are a roadblock to professionalism (Ho, 2006). It is not surprising to find that teachers are confused about how to balance between the ideology of devel-opmentally appropriate practice and the demand of academic learning imposed by parents even in preschools gaining good results in the quality assurance review (Ho, 2008). Chan and Rao (2013) also found that teachers only grasped superficial theo-ries behind child-centred teaching approaches and were not able to apply them into practice. At the school level, principals and teachers claimed that they had increased workload associated with regulatory measures and professional upgrading, which in turn might influence the quality of teaching practices (Yuen & Yu, 2012).

There are also concerns about whether or not the PEVS is the most desirable form of financial subsidy for parents and whether or not market-driven pre-primary education can enhance quality (Education Commission, 2010). Under the current

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in order to enhance the quality of private school education. Under the scheme, schools are free to decide on their curriculum, fees and entrance requirements (Education Bureau, 2014a).

PEVS, parents' choice has actually substantially influenced the preschools' financial status. It was found that preschools have to satisfy parents' demands in their curriculum design by packaging their curriculum with academic drills, although they are sometimes not consistent with the pedagogical approaches recommended by the *Guide* (Fung & Lam, 2009; Ng, 2014). Actually, parents were comparatively more supportive, and perceived more positive impacts from the scheme than the teachers and principals (Li et al., 2010). Parents had perceived an enhancement in the quality of education, and they had more money to support their children's extra-curricular activities (Li et al., 2010; Yuen, 2010; Yuen & Yu, 2012). It is necessary to note that the PEVS was not only intensifying the competition among preschools, it was also helping parents to get more money to enrol their children in more extra-curricular activities that involve academic learning. As noted earlier, parents feel that these will help children secure admission in desired primary schools and clearly reflects the widely acknowledged emphasis on academic achievement in Chinese societies. Hence, one may argue that since parents may use the extra disposable income associated with the implementation of the PEVS to provide for academic learning activities for children, the scheme has influenced the home learning environment of preschool children in a way that is at odds with child-centred play based theories.

Early Learning Experiences and Changing Educational Policy

The Hong Kong government is exerting efforts to enhance the quality of pre-primary education (Rao & Li, 2009). However, the efficacy of these efforts has been questioned. Studies have showed that the Guide to Pre-primary Curriculum is not adequate and does not appear to serve its purpose in guiding teaching and learning at the preschool level. The introduction of PEVS has the implicit objectives of the government in increasing market competition and strengthening government control. The overall quality is assumed to be assured with increased transparency and accountability of those pre-primary institutes joining the system (Ho, 2007; Li, Wong, & Wang, 2008). However, there are still wide variations in preschool quality despite the new quality assurance processes (Chan & Rao, 2013). Why is there a gap between policy provision and its realization? We argue that the traditional Chinese values play a significant role in the process.

The government efforts to upgrade pre-primary teachers' professional qualifications have helped teachers to acquire basic knowledge and skills in implementing a child-centred holistic approach toward teaching and learning. Some teachers emphasize child-centred concepts and are also keen to adopt more child-centred teaching approaches (Rao, Ng, & Pearson, 2009). However, preschool teachers are still encountering difficulties in implementing child-centred teaching approaches. Many preschools respond to parental demands for an academic curriculum. Research indicates that preschool teachers are struggling between their wishes to engage in a play-based child-centred teaching and the requirements to conform to traditional Confucian expectations on attaining academic success through drilling (Ng & Rao, 2008;

Pearson & Rao, 2006). More than that, the PEVS has increased market pressure on preschools (Yuen & Grieshaber, 2009). Parents, as consumers, have directly and indirectly influenced the provision of early childhood education and are critical to the survival of the pre-primary institutes (Ho, 2008). The intense competition among preschools results in the provision of a more academic-focused curriculum in line with parents' desires (Rao & Li, 2009; Yuen & Grieshaber, 2009). As discussed earlier, traditional Chinese values emphasize academic success, teacher-directedness, and drill-and-practice approaches to learning. Such beliefs influence both parents and teachers who adopt traditional teaching approaches (Ng, 2014). Educational reform based on Western notions and Confucian values are both reflected in preschool pedagogy. The western ideology of child-centred, play-based approach towards learning recommended by the official curriculum guide and deeply embedded Confucian values are evident in preschool pedagogy.

The provision of Guide to Pre-primary Curriculum is important and appropriate in setting the orientation of preschool education in Hong Kong. It acknowledges the ideas of child-centred and meaningful learning, promotes pedagogical continuity from preschool to primary school education, and aligns with the rationale in fostering a balanced development of children through play and experience. Although Chinese traditional beliefs may not align with the Western ideas towards teaching and learning, it is meaningful to think about how to synergize Chinese traditional cultural beliefs with Western-oriented practices against the age of globalization. The introduction of the Guide to Pre-primary Curriculum was very useful, despite the fact that its intended goals may have not been fully achieved. Further efforts in parental education and teachers' professional development are particularly needed to facilitate the implementation of the *Guide*. On the other hand, we should acknowledge the importance of developing culturally relevant framework in assessing quality education (Rao, 2010; Woodhead, 1999). There is no one practice that is suitable for all children. For example, in some cases, the Chinese emphases on drill and practice and direct teaching, which helps children to perform better in mathematics learning compared with their English speaking peers as children appear to receive more support from both home and school contexts (Cai, Lin, & Fan, 2004; Ng, 2014; Rao, Chi, & Cheng, 2009). Research suggests that the traditional belief that indirect instruction is always better than direct instruction has been challenged and it is argued that it is inappropriate to overgeneralize cultural tendencies towards learning (Wang & Wang, 2014).

In summary, we argue that the changing role of the State, teacher characteristics and traditional Chinese beliefs should be adequately considered for an understanding of the early learning experiences of young Chinese learners in Hong Kong. The government has allocated resources in enhancing the quality of early childhood education through different monitoring measures and supporting professional development of teachers. However, preschool education in Hong Kong has not necessarily become more child-centred as teachers have difficulties implementing developmentally appropriate teaching. In terms of home-based learning, the influence of traditional Chinese beliefs about academic achievement is predominant and parents continue to prioritize academic learning. Thus Chinese parental beliefs

and practices moderate the efforts of the state to promote holistic early development and learning. As a result, the learning experiences of young children in Hong Kong reflect the combined influences from both the efforts of the state to promote holistic early development and learning and the traditional Chinese beliefs emphasizing discipline, obedience and academic success at the pre-primary level. Early childhood education in Hong Kong, as is the case for other Chinese societies (Rao et al., 2014), continues to represent a fusion of the old and the new (Rao et al., 2009).

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Part X
Epilogue

Chapter 40
Asian Learners: Retrospect and Prospect

Allan B.I. Bernardo and Ronnel B. King

Abstract We observe some themes and trends across the different chapters of the book with reference to the research program of David A. Watkins and to the seminal book *The Chinese Learner* by Watkins and Biggs (1996). We first briefly summarize some of the key methodological and theoretical elements in Watkins' research program that calls attention to the cultural dimensions of the psychology of learners and learning processes. We reflect on issues related to the use of the construct of "Asian learners" and note the underrepresentation of learners from some Asian countries in research. We also underscore how some research inspired by Watkins' cross-cultural research approach in educational psychology fall short of effectively theorizing about how social and cultural processes relate to learning in schools. We observe how researchers have followed Watkins' lead in applying both etic and emic approaches to research and extended Watkins' approach to a wider range of psychological experiences of learners, consistent with the growing scope of research in psychology in education. In all of the above, we point to opportunities for further research and further building on the legacy of David A. Watkins.

The title of this chapter is an echo of the concluding chapter ("The Chinese Learner in Retrospect") coauthored by John Biggs and David Watkins (1996) in their groundbreaking volume, *The Chinese Learner: Cultural, Psychological, and Contextual Influences* (Watkins & Biggs, 1996). The choice to echo the title was intentional as we seek to revisit and expand on the themes in that landmark book. But we should keep in mind that the purposes of *The Chinese Learner* were defined in a much more focused space. The basic question addressed by that book was "who is the Chinese learner?" – a question that was motivated by the so-called paradox of the Chinese learner who was perceived to be using low-level rote learning strategies while attaining high levels of achievement. The volume addressed this question by

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taking an explicitly cross-cultural perspective (Watkins, 1996) and by assembling a range of studies that addressed the paradox. Taken together, the chapters in the volume seemed to posit a functionalist view that the best way to understand the Chinese learner was by understanding how the learner was coping with the Chinese educational context, which is embedded with the Confucian heritage culture.

This Festschrift adopts the basic cross-cultural perspective espoused by Prof. Watkins (1996; King & Watkins, 2013) but expands its application to a diverse set of Asian learners from 14 different Asian countries, autonomous regions, and/or economies. Indeed, the contributing authors to this volume have all decided to take the trail started by Prof. Watkins, and while some have stayed close to the methodological and theoretical paths previously set by Watkins, Biggs, and their cohorts, others have created new paths that make the cross-cultural inquiries about Asian learners all the more exciting. We begin this chapter by briefly summarizing the most important themes in Prof. Watkins' scholarship (for a more detailed summary, please see Chap. 2). With this summary as base, we then revisit some of the methodological and conceptual issues that Prof. Watkins addressed in his research by reviewing how current researchers on Asian learners have positioned themselves as regards these issues and also point to related emergent issues. Our discussion will culminate in our attempt to present prospects for future research on the psychology of Asian learners, further expanding on the trails set by Prof. Watkins.

Cultural Dimensions of the Psychology of Learners

Prof. Watkins was one of the pioneers in the cross-cultural study of the psychology of learning, and his initial efforts involved testing the validity of psychological tests and scales in different Asian cultures. These initial efforts drew significantly from the methodological and psychometric approaches in the cross-cultural personality psychology research field and continued to grow with developments in the area. Thus, one of the consistent strands in Prof. Watkins' research is the validation of psychological scales used to study the self-beliefs, motivations, learning approaches and strategies, and other learning-related processes and outcomes in students from different cultures.

As the various quantitative contributions to this volume indicate, attention to the cultural validity of psychological scales is now a basic methodological requirement that is necessary to investigate theoretical and empirical relationships between different learning variables in different cultures (see, e.g., Chap. 9). This basic focus is reflected in numerous contributions (see, e.g., Chaps. 7, 18, and 20) and continues Prof. Watkins' major thrust of inquiring into the generalizability of supposedly universal theoretical notions about learners and the learning processes. In some cases, such investigations confirm the theoretical propositions established with data from Western students, but in some cases the data from Asian learners suggest different patterns of relationships. In much of Prof. Watkins' research, such difference was explained as being brought about by cultural and socialization processes in the family and in the schools, and this approach is reflected in several of the chapters in this volume (see, e.g., Chaps. 11, 14, and 19).

But Prof. Watkins' research went beyond merely validating relationships among learning variables specified in established theories. His most important contributions to the psychology of learners involved questioning the definitions and dimensions of the constructs in theories of learners and learning, such as his work redefining the dimensions of learning approaches and learning motivations and clarifying different culturally rooted meanings of rote learning, memorization, and competition, among others. We see these strands in Prof. Watkins' scholarship being continued in several contributions in this volume (see, e.g., Chap. 31), especially those that take qualitative (e.g., Chaps. 3 and 5) or a mixed-methods approach (e.g., Chap. 11 and 22).

In these various strands of research, Prof. Watkins and his numerous collaborators pushed the psychological study of learners and learning from its universal theoretical notions. In doing so, his research affirmed some generalizable aspects of the theories to a number of Asian, African, and other cultures, but more importantly, his research cast the learning processes in school as deeply cultural phenomena. In the following section, we consider some of the theoretical and methodological issues that were explicit in Prof. Watkins' research on the cultural dimensions of learning processes, but also refer to some new but related issues.

The Asian Learners: A Useful Construct?

One of these new but related issues relates to the question "who is the Asian learner?" In this volume, we posed the concept of "Asian learners" as an attempt to extend Watkins and Biggs original concept of the "Chinese learner," but realize that doing so can be problematic. "Asia" is primarily a political construct, and as such, the concept of the Asian learner actually represents a diverse range of learners from East Asia (e.g., China, Hong Kong, Japan, Macau, South Korea), Southeast Asia (e.g., Indonesia, Malaysia, Philippines, Singapore), South Asia (e.g., Bangladesh, India, Pakistan, Sri Lanka), and West Asia (e.g., Oman, Qatar, Saudi Arabia). Not only are these learners ethnically and linguistically diverse, they also come from very differentsocieties with distinct social and political histories and with dissimilar educational systems. It is not surprising, therefore, that none of the chapters referred to the students in their studies as "Asian learners." Instead, most authors refer to more specific geopolitical or ethnic group labels (e.g., Singaporean students, Arab culture, Malaysian educational contexts).

In *The Chinese Learner*, the main concept that was problematized was the paradox of high achievement and use of rote learning strategies among Chinese learners. There is no common learning experience that could be ascribed to all Asian students included in the study. But there are aspects of the learning achievement of Asian learners that could be problematized, such as the wide achievement gaps across Asian countries. In the most recent Programme for International Student Assessment (PISA) results in 2012, all the top seven countries/cities were Confucian heritage cultures (Shanghai, China; Singapore; Hong Kong; Chinese Taipei; South Korea;

Macau; and Japan), but some of the lowest-ranked countries are also Asian (e.g., Indonesia and Qatar). Similar achievement gaps among Asian countries are observed in other international assessments like the Trends in International Mathematics and Science Study (TIMSS). Amid this achievement gaps, education scholars have focused much more on the successful Asian educational systems (see, e.g., Lee, Hung, & Teh, 2014), which is understandable given the interest in knowing more about what works well. The focus of such analyses has been on curricular, instructional, and policy aspects of educational systems and not on psychological processes and characteristics that might be attributable to successful Asian learners.

Despite the lack of a common set of learning experiences that could be the object of study about the Asian learner, scholars have argued that it is important to understand Asian perspectives on learning primarily as there is a need to question the universality of theories of learning that have mostly originated in the developed Western countries, but that may or may not be relevant to the aspirations of educational systems in different countries (Nguyen, Elliot, Terlouw, & Pilot, 2009; Örtenblad, Babur, & Kumari, 2012; Tan, McInerney, Liem, & Tan, 2008). Such arguments take a strong position regarding the tendency to treat learners from non-Western countries as "the rest" (Rizvi, 2004) and recognize the need to locate scholarly inquiry about learning and other educational processes within specific social and cultural contexts. Thus, even if the "Asian learner" may not represent a coherent meaningful construct, it is nevertheless a useful construct that represents the "diverseness" of learners and their learning experiences. Calling attention to Asian learners and their diversity serves an important function of underscoring the importance of the cultural aspects of the psychology of learning (King & Watkins, 2013; Zusho & Clayton, 2011) that is most consistent with the main thrust of Prof. Watkins' scholarship.

We should note that although we intended to include studies of students from a wide range of Asian countries and educational systems, the present collection actually still represents mostly research on learners from East Asian countries and Confucian heritage cultures. Over 56 % of the chapters that focus on a particular country or ethnic group involve students from China, Hong Kong, Macau, Taiwan, and South Korea, and only about 35 % involve students from the Southeast Asian countries, Indonesia, Malaysia, the Philippines, and Singapore. Only three studies involve students from West Asian countries, and there were no studies from South Asian countries. If we group the studies involving Singapore with the East Asian countries, about 60 % of the country-focused chapters involved learners from Confucian heritage cultures. We know that there are psychology and education researchers that study the psychology of learners in many other Asian countries, including those not represented in the volume. However, a quick inspection of the extant literature would indicate that studies on learners from East Asian countries and Confucian heritage cultures are overrepresented in the Asian literature and those from other Asian regions and cultures are underrepresented. The unequal representation of studies on different Asian learners may simply reflect the level of research activity in different countries (i.e., universities and research centers in Hong Kong and Singapore, in particular, are extremely research active and prolific in publishing their research outputs). The unequal representation might also reflect

a greater interest in the highly successful education systems of these East Asian countries. But if the significance of "Asian learners" as a construct is to emphasize the cultural dimensions of learning experiences and learning theories, it is important that research on Asian learner more actively explore a wider and more diverse range of learners from a more culturally varied range of Asian countries and economies.

Cross-Cultural Perspectives

Watkins (1996) advocated the cross-cultural perspective in understanding the cultural and social influences on learning processes. At that time, educational psychologists approached culture mainly from a cross-cultural perspective, but since then there have been many different approaches to studying the cultural dimensions of psychological phenomena, and these approaches also assume very different conceptualizations of what is "culture." Without going into details, we refer the readers to explore the different "generations" of cross-cultural research in psychology (Matsumoto & Yoo, 2006) and also the differences among cross-cultural, cultural, and indigenous psychological approaches in psychology (Kim, 2000). Such analyses have also been applied to cultural studies in educational psychology (King & McInerney, 2014; King & Watkins, 2013; Liem & Bernardo, 2013; Zusho & Clayton, 2011). The discontinuities among these concepts relate to differing conceptions of what is culture (Zusho & Clayton, 2011). Previous scholars have warned about the need to be careful about the use of "culture" in educational psychology research, as it tends to be used with different referents (Hwang & Matsumoto, 2013), like country or ethnicity or race. There is also a need to understand the different levels of "cultural knowledge" that might be influencing the cultural differences of psychological processes related to learning (Bernardo & Liem, 2013).

Most, if not all, of the studies featured in this Festschrift can be traced to the cross-cultural perspective in the work of David A. Watkins, yet the chapters vary in the degree to which culture is an important theoretical construct in the study. In most of the chapters, culture is the broader educational and societal context within which the psychological processes can be understood or interpreted. For example, Aldhafri's review of self-efficacy belief research (Chap. 9) focused on studies in various Arab contexts, in the same way that Abu-Hilal, Aldhafri, Albahrani, and Kamali reviewed studies on differences in goal orientations and self-concepts of male and female learners in different Arab contexts (Chap. 8). Similarly, Choi's exploration of middle school students' epistemological beliefs (Chap. 4) was located in the Korean cultural context. Such studies (see also David's study in the Philippine context (Chap. 37) and Xie's study in the Chinese context (Chap. 12), among others) did not explicitly theorize about what aspects of Arab or Korean culture would influence the nature of the learning-related beliefs, but assumed that the cultural context is an important factor to consider in understanding the learners' beliefs.

Other studies involved more explicit theorizing about how the aspects of the cultural contexts shape some of the learning-related variables. Two Singapore

studies demonstrate how aspects of the classroom learning environment have strong contextual effects on self-related beliefs of learners. Ong and Nie (Chap. 34) showed how creating mastery and vicarious experiences can shape students' self-efficacy beliefs, whereas Caleon, Tan, Wui Leen, and King (Chap. 32) traced how teacher support predicted at-risk students' engagement in their classes. In an extensive review, Wong, Ding, and Zhang (Chap. 33) clarify how contextual variables in the classroom environment interact to shape students' conceptions of mathematics. These various studies seem to refer to microlevel cultural processes (Bernardo & Liem, 2013) that influence learning processes.

Other studies explicitly refer to how macro-level cultural processes may be influencing learner beliefs and values. Van Schalkwyk and Hoi (Chap. 5) propose that Macau learners' reasons and goals in higher education are shaped by the broader societal constraints and values within which Macau youth define the meaning of their educational experiences. Ku (Chap. 35) reviews some of her studies that show how making the value of materialism cognitively active through priming influences Chinese students' learning orientation and performance and discusses how the increasingly consumerist values in economically developed Asian societies like Hong Kong might be indirectly shaping students' learning orientations. Rao, Ng, and Sun (Chap. 39) refer to how changes in Hong Kong educational policies interact with culturally rooted beliefs about learning to transform the learning experiences of preschool learners.

The importance of other macro-level cultural processes becomes more salient in investigations of learners who are studying in cultures and societies different from their original mother culture. Yu (Chap. 27) reports the challenges faced by Asian international students pursuing studies in Australia and the factors that determine their successful cross-cultural adaptations. In a similar theme, Dong, Bernardo, and Zaroff (Chap. 29) showed how acculturative stress contributes to poorer mental health of Mainland Chinese postgraduate students in Macau. Zeng (Chap. 26) documented how the challenges related to social integration of Chinese students and how the students try to converge the goals of social integration with their academic goals, which results in intellectual and conceptual transformations in the students. These studies that involve cross-cultural learning experiences highlight the role of cultural processes in learning experiences in a way that within-culture studies cannot do so.

In one chapter, the role of culture is investigated with reference to the self-construal of students, particularly as it is often assumed that the interdependent self-construal is more salient in Asian cultures. Luo and Yeung (Chap. 36) investigated, among other variables, students' levels of independent and interdependent self-construals and how these relate to their incremental beliefs about learning and their learning preferences. In a few other chapters, culture is conceptualized in a more theoretically complex way. For example, culture is understood as the interaction between processes/practices (e.g., socialization processes, norms of interpersonal behavior, etc.) or knowledge (e.g., beliefs or norms) that influence students' knowledge, values, beliefs, and motives, all of which have direct and indirect influences on students' learning. Li (Chap. 3) reviews her studies that try to reconstruct the concept of learning with Chinese culture and how these conceptions of learning differ from those of European American culture. Li's studies assume that learning as a concept is culturally constructed and that aspects of these cultural

constructions have implications for the cognitive, motivational, and affective experiences of learners in these cultures. Fwu, Wang, Chen, and Wei (Chap. 21) also demonstrate how students' conceptions of the role of effort in achievement and the related conceptions of parents and teachers about approval related to students' effort and achievement are actually emergent from Chinese cultural conceptions of learning and its moral dimensions. Tao (Chap. 38) also reviewed various studies that reconceptualize Chinese students' motivations in a more social-oriented way, in contrast to the individual-oriented motivation defined in Western theories. Tao proposes that students' learning motivations are defined within their interdependent and relational self-construals that define their roles and obligations to the family. Da Silva (Chap. 19) also reconceptualizes Japanese students' motivations in learning English in ways that show the important roles of the learners' developing identities that are associated with expectations of significant others and also of the changing perceptions regarding the role of English communication in Japanese society. These four studies explicit reconstruct theoretical definitions of learning, effort, and motivation by referring to culturally defined meanings associated with these experiences, an approach that was very explicit in much of Prof. Watkins' research. In doing so, these studies, like Prof Watkins' scholarship, show how cultural knowledge and processes may be inextricably related to learning processes.

We should note that more studies in this volume assume the important role of culture without explicitly theorizing about it, whereas fewer studies more explicitly theorize and present data showing how specific cultural factors (knowledge, processes, values) may redefine and/or influence learning-related variables. Although it is possible for us to develop a broader understanding of the characteristics and experiences of Asian learners without explicitly theorizing about culture, we believe that this understanding of what makes these learners "Asian" or "Chinese" or "Korean" or "Arab" or "Malaysian" or "Filipino" learners would only be possible if researchers articulate their theoretical assumptions about how the cultural practices, knowledge, norms, and values in the learners' cultural environment actually shape the learners' experiences and outcomes. Given the diversity in the cultural processes across Asian learners' experiences, we believe that there is a lot of potentially interesting and creative theoretical and empirical work that can be done to strengthen the scholarship in this area. The path toward this exciting space in research on the psychology of learning begins with acknowledging the role of culture in learning and clarifying the theoretical assumptions about what culture is and its role in the various aspects of students' learning experiences.

Etic and Emic Assumption Approaches to Studying Asian Learners

Perhaps one reason why there are fewer studies that explicitly theorize about culture and learning is that there is still a strong universalist assumption about theories of learning, that is, that theories of learning like theories of learning strategies and approaches, learning motivation, self-efficacy, and self-concept, among others, are

actually universal theories or may be pan-cultural theories where the main theoretical concepts and assumptions apply to all cultures although the psychological processes and mechanisms may be slightly modified by cultural experiences. We get a sense of the degree to which the universalist assumptions work if we consider the use of the emic and etic approaches across the various studies. Watkins (1996) contrasted these two approaches for purposes of studying the Chinese learner (Watkins & Biggs, 1996). He defines the etic approach to research as one "where theory and measuring instruments developed to be meaningful for one culture are utilized to compare different cultures" (Watkins, 1996, p. 20). He also defined an alternative emic approach that "uses only concepts that emerge from within a particular culture and is associated with the traditions of anthropological research"(p. 20).

We note that almost all of the studies featured in this Festschrift adopt a more etic approach to studying Asian learners. In several chapters, the investigations reported involved using Western developed theories and measures to study samples of Asian students. Examples of these are Maulanna, Helms-Lorenz, and de Grift's study of autonomous motivation in Indonesian students (Chap. 15) and Ilustrisimo's exploration of the relationship between time perspective and academic motivation in Filipino students both using self-determination theory (Chap. 18). In a very interesting large-scale cross-cultural analysis, He and van de Vijver (Chap. 16) point to some of the complexities (and paradoxes) in interpreting correlations involving these etic theories and measures within countries and across countries. In previous papers, He and van de Vijver (2013) write more extensively about issues of bias and equivalences in etic approaches that use psychological measures in different cultural contexts.

But in several other chapters, the etic approach involved cultural adaptations either in the measures or in the interpretation of the results. In these chapters, we read about how the theories that are assumed to be universal require some reinterpretation when applied to specific samples of Asian learners. Yang and Arens (Chap. 7) reviewed extensive studies on low-achieving Chinese students' self-concept and point to numerous gaps in the current understanding that do not converge with extant theories of self-concept. Two studies on learner well-being also exemplify this approach. Datu, Valdez, and King (Chap. 31) showed how the dimensions of the grit personality and their relationships to Filipino students' well-being need to be reinterpreted, and Low, King, and Caleon (Chap. 30) also showed how positive emotions relate to extrinsic forms of motivation in Singaporean students, contrary to what is typically assumed about extrinsic motivation in Western research. Other contributions by Liem on approaches to learning on Indonesian learners (Chap. 14), Choi on epistemological beliefs of Korean learners (Chap. 4), Fong and Yuen on self-efficacy of Hong Kong Chinese learners (Chap. 10), and Mesurado, Salanga, and Mateo on flourishing of Filipino learners (Chap. 28) all adopt a strongly cultural reinterpretation of the constructs and relevant theories in their discussions.

We should note that there were studies that could be considered as adopting purely etic research approaches, but that the theories and measures used were developed wholly or partly involving Asian students. The chapters of King and McInerney (Chap. 25) and Nasser (Chap. 24) and McInerney (Chap. 2) all refer to social goal

theory which was developed with reference to Asian and multicultural learning contexts. Ganotice and Yeung (Chap. 23) also refer to personal investment theory, which was also developed with reference to Asian and multicultural learning environments. David's study (Chap. 37) on social axioms also refers to a theory and measure that were developed with strong references to Asian cultural experiences and data. Goh (Chap. 13) and Liem (Chap. 14) both study approaches to learning, which is a theory developed in Europe, but both use a measure that was developed involving Asian student samples.

We observed a wide range of analytic approaches with these varied types of etic research studies. As regards the validation of the psychological measures used, it ranged from the basic assessment of internal consistency to the establishment of structural validity using confirmatory factor analysis. Sensitivity to issues of validity probably reflects the level of sophistication of how the validity of the scales is assessed. The analysis of the relationships among the relevant learning variables also ranged from basic correlation and regression analysis to more advanced modeling procedures and longitudinal analysis. The latter types of analysis exemplify important developments that would most certainly strengthen the study of the psychology of Asian learners. Learning is a process that unfolds and is dynamically interacting and transforming with factors within the learners and their classroom and cultural environment. Thus, it is important that researchers who want to develop a fuller understanding of how culture may be shaping the learning processes and outcomes of specific groups of Asian learners need to employ longitudinal research designs and quantitative analytic procedures that allow for the study of such unfolding processes. This collection features some noteworthy exemplars of this positive development. Maulanna and colleagues (Chap. 15) used a multilevel modeling approach to study the paths of how different types of autonomous motivation influence academic engagement while taking into consideration the hierarchical structure of many Indonesian classrooms. Ye (Chap. 17) tracked Hong Kong university students across semesters to examine how curiosity was influencing progress and changes in the students' learning outcomes. Yeung, Han, and Lee (Chap. 20) also tracked Mainland Chinese students through three grade levels to examine longitudinal interrelations between beliefs about competency and effort and how these predict academic achievement. These research studies raise the standard for etic types of psychology studies on different groups of Asian learners.

There were some chapters that referred to studies where the analysis involved more emic approaches, as the theoretical constructs investigated were defined mainly with reference to culture-specific concepts and experiences. These studies mostly referred to Chinese cultural concepts and experiences (e.g., Chaps. 3, 21, and 38; but see also Da Silva's study on Japanese learners of English, Chap. 19), and were previously noted as being more explicit in theorizing about culture and learning experiences. We should note that use of emic approaches does not imply the use of purely anthropological and qualitative studies, as the three chapters cited refer to both qualitative and quantitative research data.

Salanga and Bernardo (Chap. 6) also took an emic approach in studying Filipino learners' reason for not being motivated in learning, but also referred to etic theories

when interpreting some of the categories that emerged from the qualitative analysis. The advantages of using both emic and etic approaches were strongly argued for in two chapters that discuss extensive research programs on the Chinese learner. Kember's review of the research on the paradox of the Chinese learners (Chap. 11) and Cheng, Shu, Zhou, and Lam's review of their research on the motivation of Chinese learners (Chap. 22) demonstrate the value of combining etic and emic approaches to understand both the universal and cultural specific aspects of learners' psychological experiences.

That current researchers on the psychology of learners in Asia would adopt emic and etic approaches in varied and flexible ways is evidence of the significant methodological and analytic space opened up by Prof. Watkins' own research program.

Aspects of the Asian Learners' Experiences

Watkins and Biggs' (1996) volume on the Chinese learner focused on the paradox of the Chinese learners' supposed use of low-level learning strategies resulting in higher achievement outcomes. As such, the chapters in that volume focused on their learning approaches, beliefs and meanings associated with these, and how these learning approaches are shaped by functional coping approaches of the Chinese learner. The present Festschrift features a wider range of psychological processes involving Asian learners. There are still numerous studies that focus on approaches to learning and other relevant cognitive learning strategies and also on the culturally specific meanings and beliefs associated with learning and schooling. The importance of these meanings and beliefs on learning processes of Asian learners has been featured in some special journal issues that have focused attention on this important factor (see, e.g., Wong & Chai, 2010).

But reflecting the current theoretical and conceptual trends in the field of educational psychology, numerous studies also focus on the important roles of self-related beliefs and processes in learning. Given the significance of self-related processes as a vehicle for expressing cultural processes, it is not surprising that studying constructs such as self-concept, self-efficacy, self-regulation, self-esteem, and sense of self, among others, has become a key approach to better understanding the Asian learners (see Chong & Liem, 2014, for a special journal issue that also highlights this trend).

Asian learners' motivation for learning and achievement is also an important focal topic within which cultural processes and influences can be investigated. In this current collection, motivation is explored in terms of different types of theoretical constructions – achievement goals, achievement orientations, self-determination and autonomous motivations, intrinsic vs. extrinsic motivation, and social goals, among others. There have also been previous special journal issues that feature Asian learners' achievement motivation (see, e.g., Hau & Ho, 2008).

The study of emotions and affective experience has always been an important aspect of psychological research, and in recent years there has been more attention

focused on the emotional and affective experiences of learners. This trend is also reflected in this collection where we see a clear thread of studies that focus on positive emotions, affect, and curiosity, among others.

Finally, although the Watkins and Biggs (1996) volume on the Chinese learner features numerous chapters on coping with the learning context, the current collection features a much broader inquiry into coping and adjustment, where students are seen as not only coping with the academic requirements in their immediate learning contexts but also adjusting to the varying demands of their social and cultural environments. The problems of these multiple layered forms of adjustment are perhaps best seen in the case of migrant students who negotiate between demands of new cultures and academic environments at the same time.

What is most interesting is how the study features explore the relationships and interactions among different sets of psychological constructs and processes of the Asian learners. Indeed, this is a strong acknowledgement of the fact that the goal of fully understanding Asian learners, their experiences, and outcomes would require not only looking at their test scores and learning strategies. Researchers will need to attend to their beliefs about learning, schooling, and achievement, their goals and motivations, their perceptions of the values and expectations in their school, their families and communities, and how these different concepts mutually constitute each other.

Conclusion

Fortunately, the seminal work of Prof. David A. Watkins has provided clear paths for researchers who wish to participate in this lofty endeavor. For setting the trails, we thank and honor him in this Festschrift. But the truest and fullest expression of this gratitude and esteem would be in how current and future generations of psychology researchers extend these research pathways and build on a robust psychology of Asian learners.

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